Appendix J
Biological Resources Supporting Data

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APPENDIX J – BIOLOGICAL RESOURCES SUPPORTING DATA

Information presented in this appendix was compiled to assist in completion of biological resource inventories and impacts analysis included in Chapters 3 and 4.

J.1 Land Cover Categories in the Project Area

Land cover in the Energy Gateway South Transmission Project (Project) area was identified using data from the National Land Cover Gap Analysis Project (GAP) dataset (U.S. Geological Survey [USGS] 2010). The National Land Cover GAP dataset is compiled from both the Northwest GAP (University of Idaho 2012 and the Southwest GAP datasets (Lowry et al. 2005).

A total of 86 GAP land cover categories were identified in the Project area (Table J-1). Descriptions of the GAP land cover categories in the Project area were obtained from NatureServe's Ecological System classification descriptions (NatureServe 2012) or the GAP Level Three Land Cover Category Descriptions (University of Idaho 2012). Descriptions of each land cover category follow Table J-1. Descriptions of altered and disturbed land cover and land use classes (e.g., agriculture, developed, etc.) were adopted from the National Land Cover Dataset 2001 legend (Homer et al. 2004). National Wetlands Inventory (NWI) data (U.S. Fish and Wildlife Service [FWS] 2012a) was used concurrently with GAP data to help identify freshwater wetlands in the wetlands primary vegetation community type. Noxious weed data from Bureau of Land Management (BLM) Field Offices and U.S. Forest Service (USFS) Ranger Districts also were used concurrently with the GAP data to supplement identification of the invasive primary vegetation community type.

For the purposes of this Environmental Impact Statement (EIS), the 86 GAP land cover categories were consolidated and reclassified into 16 primary vegetation communities, also referred to as primary habitat types (Table J-1). This reclassification was done based on similarities of vegetative species composition, structure, and general topographic positioning of certain land cover categories.

TABLE J-1
LAND COVER CATEGORIES IN THE PROJECT AREA

Primary Vegetation Communities (Reclassification)	Land Cover Categories (Gap Analysis Project or Other)
Agriculture	Cultivated cropland
	Pasture/hay
Alpine	North American alpine ice field
	Rocky Mountain alpine bedrock and scree
	Rocky Mountain alpine dwarf-shrubland
	Rocky Mountain alpine fell-field
	Rocky Mountain alpine-montane wet meadow
	Rocky Mountain dry tundra
Aspen	Inter-Mountain Basins aspen-mixed conifer forest and woodland
	Rocky Mountain aspen forest and woodland

TABLE J-1 LAND COVER CATEGORIES IN THE PROJECT AREA	
Primary Vegetation Communities (Reclassification)	**Land Cover Categories (Gap Analysis Project or Other)**
Barren/Sparsely Vegetated (less than 10 percent cover)	Colorado Plateau mixed bedrock canyon and tableland
	Inter-Mountain Basins active and stabilized dune
	Inter-Mountain Basins cliff and canyon
	Inter-Mountain Basins playa
	Inter-Mountain Basins shale badland
	Rocky Mountain cliff, canyon, and massive bedrock
	Western Great Plains cliff and outcrop
Big Sagebrush	Inter-Mountain Basins big sagebrush shrubland
	Inter-Mountain Basins big sagebrush steppe
	Inter-Mountain Basins montane sagebrush steppe
Developed/Disturbed	Developed, high intensity
	Developed, low intensity
	Developed, medium intensity
	Developed, open space
	Disturbed, non-specific
	Disturbed/successional – recently chained pinyon-juniper
	Quarries, mines, gravel pits, and oil wells
	Recently burned
	Recently logged areas
Grassland	Inter-Mountain Basins semi-desert grassland
	Northern Rocky Mountain lower montane, foothill, and valley grassland
	Northwestern Great Plains mixed grass prairie
	Rocky Mountain subalpine-montane mesic meadow
	Southern Rocky Mountain montane-subalpine grassland
	Western Great Plains sand prairie
Invasive	Introduced upland vegetation – annual grassland
	Introduced upland vegetation – perennial grassland and forbland
	Introduced upland vegetation – treed
Montane Forest	Middle Rocky Mountain montane Douglas-fir forest and woodland
	Northern Rocky Mountain dry-mesic montane mixed conifer forest
	Northern Rocky Mountain mesic montane mixed conifer forest
	Rocky Mountain lodgepole pine forest
	Rocky Mountain subalpine dry-mesic spruce-fir forest and woodland
	Rocky Mountain subalpine mesic spruce-fir forest and woodland
	Rocky Mountain subalpine-montane limber-bristlecone pine woodland
	Southern Rocky Mountain dry-mesic montane mixed conifer forest and woodland
	Southern Rocky Mountain mesic montane mixed conifer forest and woodland
Mountain Shrub	Harvested forest-shrub regeneration
	Inter-Mountain Basins curl-leaf mountain-mahogany woodland and shrubland
	Northern Rocky Mountain montane-foothill deciduous shrubland
	Northern Rocky Mountain subalpine deciduous shrubland
	Rocky Mountain gambel oak-mixed montane shrubland
	Rocky Mountain lower montane-foothill shrubland

TABLE J-1 LAND COVER CATEGORIES IN THE PROJECT AREA	
Primary Vegetation Communities (Reclassification)	**Land Cover Categories (Gap Analysis Project or Other)**
Pinyon-Juniper	Colorado Plateau pinyon-juniper shrubland
	Colorado Plateau pinyon-juniper woodland
	Great Basin pinyon-juniper woodland
	Inter-Mountain Basins juniper savanna
	Rocky Mountain foothill limber pine-juniper woodland
	Southern Rocky Mountain pinyon-juniper woodland
Ponderosa Pine	Northern Rocky Mountain foothill conifer wooded steppe
	Southern Rocky Mountain ponderosa pine woodland
Riparian	Great Basin foothill and lower montane riparian woodland and shrubland
	Introduced riparian and wetland vegetation
	Northwestern Great Plains riparian
	Rocky Mountain bigtooth maple ravine woodland
	Rocky Mountain lower montane riparian woodland and shrubland
	Rocky Mountain subalpine-montane riparian shrubland
	Rocky Mountain subalpine-montane riparian woodland
	Western Great Plains floodplain
	Western Great Plains riparian woodland and shrubland
	National Wetlands Inventory data
Shrub/Shrub Steppe	Colorado Plateau blackbrush-mormon-tea shrubland
	Colorado Plateau mixed low sagebrush shrubland
	Great Basin xeric mixed sagebrush shrubland
	Inter-Mountain Basins greasewood flat
	Inter-Mountain Basins mat saltbush shrubland
	Inter-Mountain Basins mixed salt desert scrub
	Inter-Mountain Basins semi-desert shrub steppe
	Southern Colorado Plateau sand shrubland
	Wyoming basins dwarf sagebrush shrubland and steppe
Water	Open water (fresh)
Wetland	Great Plains prairie pothole
	Inter-Mountain Basins interdunal swale wetland
	North American arid west emergent marsh
	Rocky Mountain subalpine-montane fen
	Western Great Plains closed depression wetland
	Western Great Plains open freshwater depression wetland
	Western Great Plains saline depression wetland

J.1.1 Agriculture

Cultivated Cropland

Cultivated croplands are areas used for the production of annual crops (e.g., corn, soybeans, vegetables, tobacco, and cotton) and perennial woody crops (e.g., orchards and vineyards). Crop vegetation accounts for greater than 20 percent of total vegetation. This class also includes all land being actively tilled (University of Idaho 2012).

Pasture/Hay

Pasture/hay areas include grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20 percent of total vegetation (University of Idaho 2012).

J.1.2 Alpine

North American Alpine Ice Field

This widespread ecological system is composed of unvegetated landscapes of annual/perennial ice and snow and exposed rock and rubble at the highest elevations, where snowfall exceeds melting. The primary ecological processes include snow/ice retention and/or decadal movement (active moraines and till), wind desiccation, and permafrost. The snowpack/ice field never melts or, if so, then for only a few weeks. The alpine substrate/ice field ecological system is part of the alpine mosaic consisting of alpine tundra dry meadow, wet meadow, fell-fields, and dwarf-shrubland (University of Idaho 2012).

Rocky Mountain Alpine Bedrock and Scree

This ecological system is restricted to the highest elevations of the Rocky Mountains, from Alberta and British Columbia south into New Mexico, west into the highest mountain ranges of the Great Basin. It is composed of barren and sparsely vegetated alpine substrates, typically including both bedrock outcrop and scree slopes, with nonvascular- (lichen) dominated communities. Exposure to desiccating winds, rocky and sometimes unstable substrates, and a short growing season limit plant growth. There can be sparse cover of forbs, grasses, lichens and low shrubs (NatureServe 2012).

Rocky Mountain Alpine Dwarf-Shrubland

This widespread ecological system occurs above upper timberline throughout the Rocky Mountain cordillera, including alpine areas of ranges in Utah and Nevada, and north into Canada. Elevations are above 11,000 feet (3,360 meters) in the Colorado Rockies but drop to less than 6,900 feet (2,100 meters) in northwestern Montana and in the mountains of Alberta. This system occurs in areas of level or concave glacial topography with late-lying snow and subirrigation from surrounding slopes. Soils have become relatively stabilized in these sites, are moist but well-drained, strongly acidic, and often with substantial peat layers. Vegetation in these areas is controlled by snow retention, wind desiccation, permafrost, and a short growing season. This ecological system is characterized by a semi-continuous layer of ericaceous dwarf-shrubs or dwarf willows that form a heath-type ground cover less than 1.64 feet (0.5 meter) in height. Dense tuffs of graminoids and scattered forbs occur. *Dryas octopetala* or *Dryas integrifolia* communities are not included here, except for one very moist association, because they occur on more windswept and drier sites than the heath communities. In these communities *Cassiope mertensiana, Salix arctica, Salix reticulata, Salix vestita*, or *Phyllodoce empetriformis* can be dominant shrubs. *Vaccinium* spp., *Ledum glandulosum, Phyllodoce glanduliflora*, and *Kalmia microphylla* also may be shrub associates. The herbaceous layer is a mixture of forbs and graminoids, especially sedges, including, *Erigeron* spp., *Luetkea pectinata, Antennaria lanata, Oreostemma alpigenum (= Aster alpigenus), Pedicularis* spp., *Castilleja* spp., *Deschampsia caespitosa, Caltha leptosepala, Erythronium* spp., *Juncus parryi, Luzula piperi, Carex spectabilis, Carex nigricans*, and *Polygonum bistortoides*. Fell-fields often intermingle with the alpine dwarf-shrubland (NatureServe 2012).

Rocky Mountain Alpine Fell-Field

This ecological system is found discontinuously at alpine elevations throughout the Rocky Mountains, west into the mountainous areas of the Great Basin, and north into the Canadian Rockies. Small areas are

represented in the west side of the Okanagan Ecoregion in the eastern Cascades. These are wind-scoured fell-fields that are free of snow in the winter, such as ridgetops and exposed saddles, exposing the plants to severe environmental stress. Soils on these windy unproductive sites are shallow, stony, low in organic matter, and poorly developed; wind deflation often results in a gravelly pavement. Most fell-field plants are cushioned or matted, frequently succulent, flat to the ground in rosettes and often densely haired and thickly cutinized. Plant cover is 15 to 50 percent, while exposed rocks make up the rest. Fell-fields are usually in or adjacent to alpine tundra dry meadows. Common species include *Arenaria capillaris, Geum rossii, Kobresia myosuroides, Minuartia obtusiloba, Myosotis asiatica, Paronychia pulvinata, Phlox pulvinata, Sibbaldia procumbens, Silene acaulis, Trifolium dasyphyllum*, and *Trifolium parryi* (NatureServe 2012).

Rocky Mountain Alpine-Montane Wet Meadow

These are high-elevation communities found throughout the Rocky Mountains and Intermountain regions, dominated by herbaceous species found on wetter sites with very low-velocity surface and subsurface flows. They range in elevation from montane to alpine at 3,300 to 11,800 feet (1,000 to 3,600 meters). These types occur as large meadows in montane or subalpine valleys, as narrow strips bordering ponds, lakes, and streams, and along toeslope seeps. They typically are found on flat areas or gentle slopes but also may occur on subirrigated sites with slopes up to 10 percent. In alpine regions, sites typically are small depressions located below late-melting snow patches or on snowbeds. Soils of this system may be mineral or organic. In either case, soils show typical hydric soil characteristics, including high organic content and/or low chroma and redoximorphic features. This system often occurs as a mosaic of several plant associations, often dominated by graminoids, including *Calamagrostis stricta, Caltha leptosepala, Cardamine cordifolia, Carex illota, Carex microptera, Carex nigricans, Carex scopulorum, Carex utriculata, Carex vernacula, Deschampsia caespitosa, Eleocharis quinqueflora, Juncus drummondii, Phippsia algida, Rorippa alpina, Senecio triangularis, Trifolium parryi*, and *Trollius laxus*. Often alpine dwarf-shrublands, especially those dominated by Salix, are immediately adjacent to the wet meadows. Wet meadows are tightly associated with snowmelt and typically not subjected to high-disturbance events such as flooding (NatureServe 2012).

Rocky Mountain Dry Tundra

Alpine turf occurs above upper treeline throughout the Rocky Mountains, including alpine areas in Utah and Nevada. It is found on gentle to moderate slopes, flat ridges, and margins of alpine valleys where the soil has become relatively stable. These wind-swept sites retain little snow cover and are relatively harsh dry habitats. The plant cover is a short, often dense, diverse mixture of sod-forming grasses and sedges, and mat-forming herbs (cushion plants). Common plants include blackroot sedge, dry-spike sedge, Scirpus-like sedge, arctic bluegrass, Ross' avens, Pacific bog sedge, cushion phlox, Parry's clover, and Uinta clover. Because of the very short growing season, summer flowers are often abundant (University of Idaho 2012).

J.1.3 Aspen

Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland

This ecological system occurs on montane slopes and plateaus in Utah, western Colorado, northern Arizona, eastern Nevada, southern Idaho, western Wyoming, and in north-central Montana in the Big Snowy Mountains. It also occurs in localized settings in the Klamath Mountains of California, as well as in the Sierra Nevada and adjacent Great Basin mountains (Inyo, White, Warner, and Modoc Plateau). Elevations range from 5,600 to 9,200 feet (1,700 to 2,800 meters). Occurrences are typically on gentle to steep slopes on any aspect but often are found on clay-rich soils in intermontane valleys. Soils are derived from alluvium, colluvium, and residuum from a variety of parent materials but most typically occur on

sedimentary rocks. The tree canopy is composed of a mix of deciduous and coniferous species, codominated by *Populus tremuloides* and conifers, including *Pseudotsuga menziesii, Abies concolor, Abies lasiocarpa, Abies magnifica, Picea engelmannii, Picea glauca X engelmannii, Picea pungens, Pinus contorta, Pinus flexilis, Pinus jeffreyi, Pinus contorta* var. *murrayana*, and *Pinus ponderosa*. As the occurrences age, *Populus tremuloides* is slowly reduced until the conifer species become dominant. Common shrubs include *Amelanchier alnifolia, Prunus virginiana, Acer grandidentatum, Symphoricarpos oreophilus, Juniperus communis, Paxistima myrsinites, Rosa woodsii, Spiraea betulifolia, Symphoricarpos albus*, or *Mahonia repens*. Herbaceous species include *Bromus carinatus, Calamagrostis rubescens, Carex geyeri, Elymus glaucus, Poa* spp., and *Achnatherum, Hesperostipa, Nassella*, and/or *Piptochaetium* spp. (= *Stipa* spp.), *Achillea millefolium, Arnica cordifolia, Asteraceae* spp., *Erigeron* spp., *Galium boreale, Geranium viscosissimum, Lathyrus* spp., *Lupinus argenteus, Mertensia arizonica, Mertensia lanceolata, Maianthemum stellatum, Osmorhiza berteroi (= Osmorhiza chilensis)*, and *Thalictrum fendleri*. Most occurrences at present represent a late-seral stage of aspen changing to a pure conifer occurrence. Nearly a hundred years of fire suppression and livestock grazing have converted much of the pure aspen occurrences to the present-day aspen-conifer forest and woodland ecological system. This is the typical meadow edge aspen-conifer setting in the Sierra Nevada where frequently, due to fire suppression, the conifers are replacing aspens (NatureServe 2012).

Rocky Mountain Aspen Forest and Woodland

This widespread ecological system is more common in the southern and central Rocky Mountains but occurs in the montane and subalpine zones throughout much of the western United States and north into Canada. An eastern extension occurs along the Rocky Mountains foothill front, in mountain islands in Montana (Big Snowy and Highwood mountains), and the Black Hills of South Dakota. In California, this system is only found on the east side of the Sierra Nevada adjacent to the Great Basin. Large stands are found in the Inyo and White mountains, while small stands occur on the Modoc Plateau. In western Alberta, it occurs only in the Upper Foothills subregion and north of three transitions to Western North American Boreal Mesic Birch-Aspen Forest. Elevations generally range from 5,000 to 10,000 feet (1,525 to 3,050 meters), but occurrences can be found at lower elevations in some regions, especially in the Canadian Rockies. Distribution of this ecological system is primarily limited by adequate soil moisture required to meet its high evapotranspiration demand. Secondarily, it is limited by the length of the growing season or low temperatures. These are upland forests and woodlands dominated by *Populus tremuloides* without a significant conifer component (less than 25 percent relative tree cover). The understory structure may be complex with multiple shrub and herbaceous layers or simple with just an herbaceous layer. The herbaceous layer may be dense or sparse, dominated by graminoids or forbs. In California, *Symphyotrichum spathulatum (= Aster occidentalis)* is a common forb. Associated shrub species include *Symphoricarpos* spp., *Rubus parviflorus, Amelanchier alnifolia*, and *Arctostaphylos uva-ursi*. Occurrences of this system originate and are maintained by stand-replacing disturbances such as avalanches, crown fire, insect outbreak, disease and windthrow, or clearcutting by man or beaver, in the matrix of conifer forests. It differs from Northwestern Great Plains Aspen Forest and Parkland, which is limited to plains environments (NatureServe 2012).

J.1.4 Barren and Sparsely Vegetated

Colorado Plateau Mixed Bedrock Canyon and Tableland

The distribution of this ecological system is centered on the Colorado Plateau where it is composed of barren and sparsely vegetated landscapes (generally less than 10 percent plant cover) of steep cliff faces, narrow canyons, and open tablelands of predominantly sedimentary rocks, such as sandstone, shale, and limestone. Some eroding shale layers similar to Inter-Mountain Basins Shale Badland may be interbedded between the harder rocks. The vegetation is characterized by very open tree canopy or scattered trees and

shrubs with a sparse herbaceous layer. Common species include *Pinus edulis, Pinus ponderosa, Juniperus* spp., *Cercocarpus intricatus*, and other short-shrub and herbaceous species, utilizing moisture from cracks and pockets where soil accumulates (NatureServe 2012).

Inter-Mountain Basins Active and Stabilized Dune

This ecological system occurs in the Intermountain western United States on basins, valleys, and plains. Often it is composed of a mosaic of migrating, bare dunes; anchored dunes with sparse to moderately dense vegetation (less than 10 to 30 percent canopy cover); and stabilized dunes. The system is defined by the presence of migrating dunes or, where the dunes are entirely anchored or stabilized, evidence that the substrate is eolian and not residual, that the vegetation is early-seral or mid-seral, and that the substrate is likely to become actively migrating again with disturbance or increased aridity. In the Colorado Plateau, there are many small active and partially vegetated dunes along some of the larger washes and playas (where sand is blown out of the wash and forms dunes) and some larger dunes such as Coral Pink Sand Dunes in southwestern Utah. Substrates are usually eolian sand; but small dunes composed of silt and clay downwind from playas in the Wyoming Basins, which usually support greasewood vegetation, also are included here. Species occupying these environments often are adapted to shifting, coarse-textured substrates (usually quartz sand) and form patchy or open grasslands, shrublands or steppe, and occasionally woodlands. Vegetation varies and may be composed of *Achnatherum hymenoides, Artemisia filifolia, Artemisia tridentata* ssp. *tridentata, Atriplex canescens, Ephedra* spp., *Chrysothamnus viscidiflorus, Coleogyne ramosissima, Ericameria nauseosa, Hesperostipa comata, Leymus flavescens, Muhlenbergia pungens, Psoralidium lanceolatum, Purshia tridentata, Redfieldia flexuosa, Sporobolus airoides, Sarcobatus vermiculatus, Tetradymia tetrameres*, or *Tiquilia* spp. Herbaceous species such as *Achnatherum hymenoides, Redfieldia flexuosa*, and *Psoralidium lanceolatum* are characteristic of early-seral vegetation through much of this system's range. Shrubs are commonly dominant on mid- to late-seral stands, and *Ericameria nauseosa* can be found at any stage (NatureServe 2012).

Inter-Mountain Basins Cliff and Canyon

This ecological system ranges from Wyoming and Utah west to the Pacific states. It is found from foothill to subalpine elevations and includes barren and sparsely vegetated landscapes (generally less than 10 percent plant cover) of steep cliff faces, narrow canyons, and smaller rock outcrops of various igneous, sedimentary, and metamorphic bedrock types. Also included is vegetation of unstable scree and talus slopes that typically occurs below cliff faces. Widely scattered trees and shrubs may include *Abies concolor, Pinus edulis, Pinus flexilis, Pinus monophylla, Juniperus* spp., *Artemisia tridentata, Purshia tridentata, Cercocarpus ledifolius, Ephedra* spp., *Holodiscus discolor*, and other species often common in adjacent plant communities (NatureServe 2012).

Inter-Mountain Basins Playa

This ecological system is composed of barren and sparsely vegetated playas (generally less than 10 percent plant cover) found in the Intermountain western United States. Salt crusts are common throughout, with small saltgrass beds in depressions and sparse shrubs around the margins. These systems are intermittently flooded. The water is prevented from percolating through the soil by an impermeable soil subhorizon and is left to evaporate. Soil salinity varies greatly with soil moisture and greatly affects species composition. Characteristic species may include *Allenrolfea occidentalis, Sarcobatus vermiculatus, Grayia spinosa, Puccinellia lemmonii, Leymus cinereus, Distichlis spicata*, and/or *Atriplex* spp (NatureServe 2012).

Inter-Mountain Basins Shale Badland

This widespread ecological system of the Intermountain western United States is composed of barren and sparsely vegetated substrates (greater than 10 percent plant cover) typically derived from marine shales but also includes substrates derived from siltstones and mudstones (clay). In southern Wyoming, the shales are not marine in origin, but often have bentonite derived from volcanic ash deposition that occurred during several eruptions of the Yellowstone volcanic fields. Landforms typically are rounded hills and plains that form a rolling topography. The harsh soil properties and high rate of erosion and deposition are driving environmental variables supporting sparse dwarf-shrubs (e.g., *Atriplex corrugata, Atriplex gardneri, Artemisia pedatifida*, and herbaceous vegetation) (NatureServe 2012).

Rocky Mountain Cliff, Canyon, and Massive Bedrock

This ecological system of barren and sparsely vegetated landscapes (generally greater than 10 percent plant cover) is found from foothill to subalpine elevations on steep cliff faces, narrow canyons, and smaller rock outcrops of various igneous (intrusives), sedimentary, and metamorphic bedrock types. It is located throughout the Rocky Mountains and northeastern Cascade Ranges in North America. Also included are unstable scree and talus slopes that typically occur below cliff faces. In general these are the dry sparsely vegetated places on a landscape. The biota on them reflects what is surrounding them, unless it is an extreme parent material. There may be small patches of dense vegetation, but it typically includes scattered trees and/or shrubs. Characteristic trees includes species from the surrounding landscape, such as *Pseudotsuga menziesii, Pinus ponderosa, Pinus flexilis, Populus tremuloides, Abies concolor, Abies lasiocarpa*, or *Pinus edulis* and *Juniperus* spp. at lower elevations. There may be scattered shrubs present, such as species of *Holodiscus, Ribes, Physocarpus, Rosa, Juniperus*, and *Jamesia americana, Mahonia repens, Rhus trilobata*, or *Amelanchier alnifolia*. Soil development is limited, as is herbaceous cover (NatureServe 2012).

Western Great Plains Cliff and Outcrop

This system includes cliffs and outcrops throughout the Western Great Plains Division. Substrate can range from sandstone and limestone, which can often form bands in the examples of this system. Vegetation is restricted to shelves, cracks and crevices in the rock. However, this system differs from Western Great Plains Badlands in that often the soil is slightly developed and less erodible, and some grass and shrub species can occur at greater than 10 percent. Common species in this system include short shrubs such as *Rhus trilobata* and *Artemisia longifolia* and mixed grass species such as *Bouteloua curtipendula* and *Bouteloua gracilis* and *Calamovilfa longifolia*. Drought and wind erosion are the most common natural dynamics affecting this system (NatureServe 2012).

J.1.5 Big Sagebrush

Inter-Mountain Basins Big Sagebrush Shrubland

This ecological system occurs throughout much of the western United States, typically in broad basins between mountain ranges, plains, and foothills between 4,900 and 7,500 feet (1,500 and 2,300 meters) elevation. Soils are typically deep, well-drained, and non-saline. These shrublands are dominated by *Artemisia tridentata ssp. tridentata* (not as common in Wyoming or Montana but possibly on stabilized parts of Killpecker Dunes in Wyoming) and/or *Artemisia tridentata* ssp. *wyomingensis* (predominant in Wyoming and Montana). Scattered *Juniperus* spp., *Sarcobatus vermiculatus*, and *Atriplex* spp. may be present in some stands. *Ericameria nauseosa, Chrysothamnus viscidiflorus, Purshia tridentata* (not commonly in Montana or Wyoming), or *Symphoricarpos oreophilus* may codominate disturbed stands (e.g., in burned stands, these may become more predominant). Perennial herbaceous components typically contribute less than 25 percent vegetative cover. Common graminoid species can include *Achnatherum*

hymenoides, Bouteloua gracilis, Elymus lanceolatus, Festuca idahoensis (not in Montana or Wyoming), *Hesperostipa comata, Leymus cinereus, Pleuraphis jamesii* (not present in northeastern portions of the range), *Pascopyrum smithii, Poa secunda,* or *Pseudoroegneria spicata* (not in Wyoming). Some semi-natural communities are included that often originate on abandoned agricultural land or on other disturbed sites. In these locations, *Bromus tectorum* or other annual bromes and invasive weeds can be abundant. Most *Artemisia tridentata* ssp. *wyomingensis* communities in Wyoming are placed in Inter-Mountain Basins Big Sagebrush Steppe; the shrubland system is more restricted in environmental setting than the steppe. Dunes in the Red Desert have areas of large basin big sage with very dense canopies. In Wyoming, this system is likely to only contain *Artemisia tridentata* ssp. *tridentata* (NatureServe 2012).

Inter-Mountain Basins Big Sagebrush Steppe

This widespread matrix-forming ecological system occurs throughout much of the Columbia Plateau and northern Great Basin, east into the Wyoming Basins, central Montana, and north and east onto the western fringe of the Great Plains in Montana and South Dakota. It is found at slightly higher elevations farther south. In central Montana, this system differs slightly with more summer rain than winter precipitation, more precipitation annually, and occurs on glaciated landscapes. Soils are typically deep and non-saline, often with a microphytic crust. This shrub-steppe is dominated by perennial grasses and forbs (greater than 25 percent cover) with *Artemisia tridentata* ssp. *tridentata* (this is not at all important in Wyoming occurrences), *Artemisia tridentata* ssp. *xericensis, Artemisia tridentata* ssp. *wyomingensis, Artemisia tripartita* ssp. *tripartita* (Snake River valley in Wyoming), *Artemisia cana* ssp. *cana*, and/or *Purshia tridentata* dominating or codominating the open to moderately dense (10 to 40 percent cover) shrub layer. *Atriplex confertifolia, Chrysothamnus viscidiflorus, Ericameria nauseosa, Sarcobatus vermiculatus, Tetradymia* spp., or *Artemisia frigida* may be common especially in disturbed stands.

In Montana and Wyoming, stands are more mesic, with more biomass of grass, have less shrub diversity than stands farther west, and 50 to 90 percent of the occurrences are dominated by *Artemisia tridentata* ssp. *wyomingensis* with *Pascopyrum smithii*. In addition, *Bromus japonicus* and *Bromus tectorum* are indicators of disturbance, and *Bromus tectorum* is typically not as abundant as in the Intermountain West, possibly due to a colder climate. Associated graminoids can include *Achnatherum hymenoides, Calamagrostis montanensis, Elymus lanceolatus* ssp. *lanceolatus, Koeleria macrantha, Poa secunda, Pascopyrum smithii, Hesperostipa comata, Nassella viridula, Bouteloua gracilis*, and *Pseudoroegneria spicata*. Important rhizomatous species include *Carex filifolia* and *Carex duriuscula*, which are very common and important in the eastern distribution of this system in both Wyoming and Montana. *Festuca idahoensis* is uncommon in this system, although it does occur in areas of higher elevations/precipitation; *Festuca campestris* is also uncommon.

In Wyoming, both *Nassella viridula* and *Pseudoroegneria spicata* rarely occur, with the latter typically found in eastern Wyoming on ridgetops and rocky slopes outside of this system. In Montana, there is an absence of *Festuca* spp., except *Vulpia octoflora*. Common forbs are *Phlox hoodii, Arenaria* spp., *Opuntia* spp., *Sphaeralcea coccinea, Dalea purpurea, Liatris punctata*, and *Astragalus* spp. Areas with deeper soils more commonly support *Artemisia tridentata* ssp. *tridentata* but have largely been converted for other land uses. The natural fire regime of this ecological system likely maintains a patchy distribution of shrubs, so the general aspect of the vegetation is grassland. Shrubs may increase following heavy grazing and/or with fire suppression, particularly in moist portions of the northern Columbia Plateau where it forms a landscape mosaic pattern with shallow-soil scabland shrublands. Where fire frequency has allowed for shifts to a native grassland condition, maintained without significant shrub invasion over a 50- to 70-year interval, the area would be considered Columbia Basin Foothill and Canyon Dry Grassland (NatureServe 2012).

Inter-Mountain Basins Montane Sagebrush Steppe

This ecological system includes sagebrush communities occurring at foothills (in Wyoming) to montane and subalpine elevations across the western United States from 3,300 feet (1,000 meters) in eastern Oregon and Washington to more than 9,800 feet (3,000 meters) in the southern Rockies. In Montana, it occurs on mountain islands in the north-central portion of the state and possibly along the Boulder River south of Absarokee and at higher elevations. In British Columbia, it occurs between 1,450 and 5,400 feet (450 and 1,650 meters) in the southern Fraser Plateau and the Thompson and Okanagan basins. Climate is cool, semi-arid to subhumid. This system primarily occurs on deep-soiled to stony flats, ridges, nearly flat ridgetops, and mountain slopes. In general, this system shows an affinity for mild topography, fine soils, some source of subsurface moisture or more mesic sites, zones of higher precipitation, and areas of snow accumulation. Across its range of distribution, this is a compositionally diverse system. It is composed primarily of *Artemisia tridentata* ssp. *vaseyana, Artemisia cana* ssp. *viscidula*, and related taxa such as *Artemisia tridentata* ssp. *spiciformis (= Artemisia spiciformis)*. *Purshia tridentata* may codominate or even dominate some stands. *Artemisia arbuscula* ssp. *arbuscula*-dominated shrublands commonly occur in this system on rocky or windblown sites. Other common shrubs include *Symphoricarpos* spp., *Amelanchier* spp., *Ericameria nauseosa, Peraphyllum ramosissimum, Ribes cereum*, and *Chrysothamnus viscidiflorus*. *Artemisia tridentata* ssp. *wyomingensis* may be present to codominant if the stand is clearly montane as indicated by montane indicator species such as *Festuca idahoensis, Leucopoa kingii*, or *Danthonia intermedia*. Most stands have an abundant perennial herbaceous layer (more than 25 percent cover, in many cases more than 50 percent cover), but this system also includes *Artemisia tridentata* ssp. *vaseyana* shrublands. Common graminoids include *Danthonia intermedia, Festuca arizonica, Festuca idahoensis, Hesperostipa comata, Poa fendleriana, Elymus trachycaulus, Bromus carinatus, Poa secunda, Leucopoa kingii, Deschampsia caespitosa, Calamagrostis rubescens*, and *Pseudoroegneria spicata*. Species of *Achnatherum* are common, including *Achnatherum nelsonii* ssp. *dorei, Achnatherum nelsonii* ssp. *nelsonii, Achnatherum hymenoides*, and others. In many areas, wildfires can maintain an open herbaceous-rich steppe condition; although at most sites, shrub cover can be unusually high for a steppe system (greater than 40 percent), with the moisture providing equally high grass and forb cover (NatureServe 2012).

J.1.6 Developed/Disturbed

Developed, High Intensity

This land cover category includes highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses, and commercial/industrial development. Impervious surfaces account for 80 to 100 percent of the total cover (University of Idaho 2012).

Developed, Low Intensity

This land cover category includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20 to 49 percent of total cover. These areas most commonly include single-family housing units (University of Idaho 2012).

Developed, Medium Intensity

This land cover category includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50 to 79 percent of the total cover. These areas most commonly include single-family housing units (University of Idaho 2012).

Developed, Open Space

This land cover category includes areas with a mixture of some constructed materials but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20 percent of total cover. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes (University of Idaho 2012).

Disturbed, Non-specific

This land cover category includes areas that are barren or have relatively low vegetation cover that is associated with some form of generic human alteration or management regime. These areas typically are associated with heavy amounts of grazing (University of Idaho 2012).

Disturbed/Successional – Recently Chained Pinyon-Juniper

This land cover category includes areas that have recently been chained to remove pinyon-juniper and are clearly evident in the imagery (images acquired between 1999 and 2001) (University of Idaho 2012).

Quarries, Mines, Gravel Pits, and Oil Wells

This land cover category includes areas of extractive mining activities with significant surface expression (University of Idaho 2012).

Recently Burned

This land cover category includes areas that have burned in the recent past and are clearly evident in the imagery (images acquired between 1999 and 2001) (University of Idaho 2012).

Recently Logged Areas

This land cover category includes areas that have recently been clear-cut or thinned by 50 percent or more and are clearly evident in the imagery (images acquired between 1999 and 2001) (University of Idaho 2012).

J.1.7 Grassland

Inter-Mountain Basins Semi-Desert Grassland

This widespread ecological system includes the driest grasslands throughout the Intermountain western United States. It occurs on xeric sites over an elevation range of approximately 4,750 to 7,610 feet (1,450 to 2,320 meters) on a variety of landforms, including swales, playas, mesas, alluvial flats, and plains. This system may constitute the matrix over large areas of Intermountain basins, and also may occur as large patches in mosaics with shrubland systems dominated by *Artemisia tridentata* ssp. *tridentata, Artemisia tridentata* ssp. *wyomingensis, Atriplex* spp., *Coleogyne* spp., *Ephedra* spp., *Gutierrezia sarothrae*, or *Krascheninnikovia lanata*. Grasslands in areas of higher precipitation, at higher elevation, typically belong to other systems. Substrates often are well-drained sandy or loam soils derived from sedimentary parent materials but are quite variable and may include fine-textured soils derived from igneous and metamorphic rocks. The dominant perennial bunch grasses and shrubs in this system are all drought-resistant plants. Dominant or codominant species are *Achnatherum hymenoides, Aristida* spp., *Bouteloua gracilis, Hesperostipa comata, Muhlenbergia* spp., or *Pleuraphis jamesii*. Scattered shrubs and dwarf-shrubs often are present, especially *Artemisia tridentata* ssp. *tridentata, Artemisia tridentata* ssp. *wyomingensis, Atriplex* spp., *Coleogyne* spp., *Ephedra* spp., *Gutierrezia sarothrae*, and

Krascheninnikovia lanata. Grasslands in the basins of south-central and southwestern Wyoming, dominated by *Pseudoroegneria spicata* and *Poa secunda* and containing cushion-form forbs and other species typical of dry basins, are included in this system (NatureServe 2012).

Northern Rocky Mountain Lower Montane, Foothill, and Valley Grassland

This ecological system of the northern Rocky Mountains is found at lower montane to foothill elevations in the mountains and large valleys of northeastern Wyoming and western Montana, west through Idaho into the Blue Mountains of Oregon, and north into the Okanagan and Fraser plateaus of British Columbia and the Canadian Rockies. They also occur to the east in the central Montana mountain islands and foothills, as well as the Rocky Mountain Front and Big and Little Belt ranges. These grasslands are floristically similar to Inter-Mountain Basins Big Sagebrush Steppe, Columbia Basin Foothill and Canyon Dry Grassland , and Columbia Basin Palouse Prairie , but are defined by shorter summers, colder winters, and young soils derived from recent glacial and alluvial material. These northern lower montane and valley grasslands represent a shift in the precipitation regime from summer monsoons and cold snowy winters found in the southern Rockies to predominantly dry summers and winter precipitation. In the eastern portion of its range in Montana, winter precipitation is replaced by a huge spring peak in precipitation. They are found at elevations from 980 to 5,400 feet (300 to 1,650 meters), ranging from small meadows to large open parks surrounded by conifers in the lower montane, to extensive foothill and valley grasslands below the lower treeline. Many of these valleys may have been primarily sage-steppe with patches of grassland in the past, but because of land-use history post-settlement (herbicide, grazing, fire suppression, pasturing, etc.), they have been converted to grassland-dominated areas. Soils are relatively deep, fine-textured, often with coarse fragments, and non-saline, often with a microphytic crust.

The most important species are cool-season perennial bunch grasses and forbs (greater than 25 percent cover), sometimes with a sparse (less than 10 percent cover) shrub layer. *Pseudoroegneria spicata, Festuca campestris, Festuca idahoensis*, or *Hesperostipa comata* commonly dominate sites on all aspects of level to moderate slopes and on certain steep slopes with a variety of other grasses, such as *Achnatherum hymenoides, Achnatherum richardsonii, Hesperostipa curtiseta, Koeleria macrantha, Leymus cinereus, Elymus trachycaulus, Bromus inermis* ssp. *pumpellianus (= Bromus pumpellianus), Achnatherum occidentale (= Stipa occidentalis), Pascopyrum smithii*, and other graminoids such as *Carex filifolia* and *Danthonia intermedia*. Other grassland species include *Opuntia fragilis, Artemisia frigida, Carex petasata, Antennaria* spp., and *Selaginella densa*. Important exotic grasses include *Phleum pratense, Bromus inermis*, and *Poa pratensis*. Shrub species may be scattered, including *Amelanchier alnifolia, Rosa* spp., *Symphoricarpos* spp., *Juniperus communis, Artemisia tridentata*, and in Wyoming *Artemisia tripartita* ssp. *rupicola*. Common associated forbs include *Geum triflorum, Galium boreale, Campanula rotundifolia, Antennaria microphylla, Geranium viscosissimum*, and *Potentilla gracilis*. A soil crust of lichen covers almost all open soil between clumps of grasses; *Cladonia* and *Peltigera* are the most common lichens. Unvegetated mineral soil is commonly found between clumps of grass and the lichen cover.

The fire regime of this ecological system maintains a grassland due to rapid fire return that retards shrub invasion or landscape isolation and fragmentation that limits seed dispersal of native shrub species. Fire frequency is presumed to be less than 20 years. These are extensive grasslands, not grass-dominated patches in the sagebrush shrub steppe ecological system. *Festuca campestris* is easily eliminated by grazing and does not occur in all areas of this system (NatureServe 2012).

Northwestern Great Plains Mixed Grass Prairie

This system extends from northern Nebraska into southern Canada and westward through the Dakotas to the Rocky Mountain Front in Montana and probably Wyoming, on both glaciated and non-glaciated

substrates. Soil texture (which ultimately effects water available to plants) is the defining environmental descriptor; soils are primarily fine and medium-textured and do not include sands, sandy soils, or sandy loams. This system occurs on a wide variety of landforms (e.g., mesatops, stream terraces) and in proximity to a diversity of other systems. It is found most commonly in association with Western Great Plains Sand Prairie that occupies the coarser-textured substrates. In various locales the topography where this system occurs is broken by many glacial pothole lakes, and this system may be proximate to the Great Plains Prairie Pothole. On the eastern Montana plains, mixed grass prairie is by far the predominant system. Here it occurs continuously for hundreds of square kilometers, interrupted only by riparian areas or sand prairies, which are associated with gentle rises, eroded ridges or mesas derived from sandstone. Historically, this system covered approximately 38 million hectare in Nebraska, North and South Dakota, and Canada; now it covers approximately 270,000 square kilometers in this region. The growing season and rainfall are intermediate to drier units to the southwest and mesic tallgrass regions to the east.

Graminoids typically comprise the greatest amount of canopy cover, including *Pascopyrum smithii*, *Nassella viridula*, and *Festuca* spp. In Montana these include *Festuca campestris* and *Festuca idahoensis*. Other commonly dominant species in Montana are *Bouteloua gracilis*, *Hesperostipa comata*, and *Carex filifolia*, while *Festuca campestris* and *Festuca idahoensis* may be more abundant in the north and foothill/montane grassland transition areas. Remnants of *Hesperostipa curtiseta*-dominated vegetation are found in northernmost Montana and North Dakota associated with the most productive sites (largely plowed to cereal grains); the species, usually in association with *Pascopyrum smithii*, is much more abundant in Canada. Sites with a strong component of *Nassella viridula* indicate a more favorable moisture balance and perhaps a favorable grazing regime as well because this is one of the most palatable of the mid-grasses. *Hesperostipa comata* is also an important component and becomes increasingly so as improper grazing regimes usually favor it at the expense of *Pascopyrum smithii*; progressively more destructive grazing can result in the loss of *Pascopyrum smithii* from the system followed by drastic reduction in *Hesperostipa comata* and ultimately the dominance of *Bouteloua gracilis* (or *Poa secunda* and other short graminoids) and/or a lawn of *Selaginella densa*. *Koeleria macrantha*, at least in Montana and southern Canada, is the most pervasive grass; if it has high cover, past intensive grazing is the presumed reason. Shrub species such as *Symphoricarpos* spp. and *Artemisia frigida* and *Artemisia cana* also occur.

Fire and grazing constitute the primary dynamics affecting this system. Drought also can affect this system, in general favoring the shortgrass component at the expense of the mid-grasses. With intensive grazing, cool-season exotics such as *Poa pratensis*, *Bromus inermis*, and *Bromus japonicus* can increase in dominance; both of the rhizomatous grasses have been shown to markedly depress species diversity. Shrub species such as *Juniperus virginiana* also can increase in dominance with fire suppression. This system is one of the most disturbed grassland systems in Nebraska, North and South Dakota, and Canada (NatureServe 2012).

Rocky Mountain Subalpine-Montane Mesic Meadow

This Rocky Mountain ecological system is restricted to sites from lower montane to subalpine where finely textured soils, snow deposition, or windswept dry conditions limit tree establishment. Many occurrences are small patches in spatial character and often are found in mosaics with woodlands, more dense shrublands, or just below alpine communities. It is typically found above 6,500 feet (2,000 meters) in the southern part of its range and above 1,950 feet (600 meters) in the northern part. These upland communities occur on gentle to moderate-gradient slopes and relatively moist habitats. The soils are typically seasonally moist to saturated in the spring, but if so will dry out later in the growing season. These sites are not as wet as those found in Rocky Mountain Alpine-Montane Wet Meadow. Vegetation is typically forb-rich with forbs often contributing more to overall herbaceous cover than graminoids. Some stands are comprised of dense grasslands, these often being taxa with relatively broad and soft

blades, but where the moist habitat promotes a rich forb component. Important taxa include *Erigeron* spp., Asteraceae spp., *Mertensia* spp., *Penstemon* spp., *Campanula* spp., *Lupinus* spp., *Solidago* spp., *Ligusticum* spp., *Thalictrum occidentale, Valeriana sitchensis, Rudbeckia occidentalis, Balsamorhiza sagittata*, and *Wyethia* spp. Important grasses include *Deschampsia caespitosa, Koeleria macrantha*, perennial *Bromus* spp., and a number of *Carex* species. *Dasiphora fruticosa* ssp. *floribunda* and *Symphoricarpos* spp. are occasional but not abundant. Burrowing mammals can increase the forb diversity (NatureServe 2012).

Southern Rocky Mountain Montane-Subalpine Grassland

This Rocky Mountain ecological system typically occurs between 7,200 and 9,850 feet (2,200 and 3,000 meters) on flat to rolling plains and parks or on lower sideslopes that are dry, but it may extend up to 11,000 feet (3,350 meters) on warm aspects. Soils resemble prairie soils in that the A-horizon is dark brown, relatively high in organic matter, slightly acidic, and usually well drained. An occurrence usually consists of a mosaic of two or three plant associations with one of the following dominant bunch grasses: *Danthonia intermedia, Danthonia parryi, Festuca idahoensis, Festuca arizonica, Festuca thurberi, Muhlenbergia filiculmis*, or *Pseudoroegneria spicata*. The subdominants include *Muhlenbergia montana, Bouteloua gracilis*, and *Poa secunda*. These large-patch grasslands are intermixed with matrix stands of spruce-fir, lodgepole pine, ponderosa pine, and aspen forests. In limited circumstances (e.g., South Park in Colorado), they form the matrix of high-elevation plateaus. Small-patch representations of this system do occur at high elevations of the Trans-Pecos where they present as occurrences of *Festuca arizonica-Blepharoneuron tricholepis* herbaceous vegetation. These occurrences often occupy sites adjacent to Madrean Oriental Chaparral (NatureServe 2012).

Western Great Plains Sand Prairie

The sand prairies constitute a very unique system in the western Great Plains. These sand prairies often are considered part of the tallgrass or mixed grass regions in the western Great Plains but can contain elements from Western Great Plains Shortgrass Prairie, Central Mixed Grass Prairie, and Northwestern Great Plains Mixed Grass Prairie. The largest expanse of sand prairies (approximately 5 million hectares) can be found in the Sandhills of north-central Nebraska and southwestern South Dakota. These areas are relatively intact. The primary use of this system has been grazing (not cultivation), and areas such as the Nebraska Sandhills can experience less degeneration than other prairie systems. Although greater than 90 percent of the Sandhills region is privately owned, the known fragility of the soils and the cautions used by ranchers to avoid poor grazing practices have allowed for fewer significant changes in the vegetation of the Sandhills compared to other grassland systems. The unifying and controlling feature for this system is that coarse-textured soils predominate and the dominant grasses are well-adapted to this condition.

Soils in the sand prairies can be relatively undeveloped and are highly permeable. Soil texture and drainage along with a species' rooting morphology, photosynthetic physiology, and mechanisms to avoid transpiration loss are highly important in determining the composition of the sand prairies. In the northwestern portion of its range, stand size corresponds to the area of exposed caprock sandstone, and small patches predominate, but large patches also are found embedded in the encompassing Northwestern Great Plains Mixed Grass Prairie.

Another important feature is their susceptibility to wind erosion. Blowouts and sand draws are some of the unique wind-driven disturbances in the sand prairies, particularly the Nebraska Sandhills. In most of eastern Montana, substrates supporting this system have weathered in place from sandstone caprock; thus the solum is relatively thin, and the wind-sculpted features present farther east, particularly in Nebraska, do not develop. Graminoid species dominate the sand prairies, although relative dominance can change due to impacts of wind disturbance. *Andropogon hallii* and *Calamovilfa longifolia* are the most common

species, but other grass and forb species such as *Hesperostipa comata*, *Carex inops* ssp. *heliophila*, and *Panicum virgatum* may be present. Apparently only *Calamovilfa longifolia* functions as a dominant throughout the range of the system. In the western extent, *Hesperostipa comata* becomes more dominant, and *Andropogon hallii* is less abundant but still present. Communities of *Artemisia cana* ssp. *cana* are included here in central and eastern Montana. Patches of *Quercus havardii* also can occur in this system in the southern Great Plains. Fire and grazing constitute the other major dynamic processes that can influence this system (NatureServe 2012).

J.1.8 Invasive

Introduced Upland Vegetation – Annual Grassland

This land cover category includes areas dominated by introduced, annual and/or biennial forb species such as *Halogeton glomeratum*, *Kochia scoparia*, and *Salsola* spp. or annual grass species such as *Avena* spp., *Bromus* spp., and *Schismus* spp. (University of Idaho 2012).

Introduced Upland Vegetation – Perennial Grassland and Forbland

This land cover category includes areas that are dominated by introduced perennial forb or grassland species such as: *Cirsium arvense*, *C. vulgare*, *Centaurea* spp., *Euphorbia esula*, *Isatis tinctora*, *Lepidium* ssp., *Melilotus albus*, M. *officinalis*, *Onopordum acanthium*, *Agropyron cristatum*, *Bromus inermis*, *Eragrostis lehmannianna*, *Pennisetum* spp., *Poa bulbosa*, *P. pratensis*, *Thinopyrum intermedium* (University of Idaho 2012).

Introduced Upland Vegetation – Treed

This land cover category includes vegetation dominated (typically greater than 60 percent canopy cover) by introduced species. These areas are spontaneous, self-perpetuating, and are not the immediate result of planting, cultivation, or human maintenance. Land occupied by introduced vegetation is generally permanently altered (converted) unless restoration efforts are undertaken. Specifically, land cover is significantly altered/disturbed by introduced tree species (University of Idaho 2012).

Noxious Weeds

In addition to the GAP land cover categories used to define invasive habitat in the Project area, noxious weed distribution information was obtained from BLM field offices and USFS ranger districts and was used in conjunction with the GAP data to supplement identification of the invasive primary habitat type to determine the presence of noxious weeds in the Project area.

J.1.9 Montane Forest

Middle Rocky Mountain Montane Douglas-fir Forest and Woodland

This ecological system occurs throughout the middle Rocky Mountains of central and southern Idaho (Lemhi, Beaverhead, and Lost River ranges), south and east into the greater Yellowstone region, and south and east into the Wind River, Gros Ventre, and Bighorn ranges of Wyoming. It extends north into Montana on the east side of the Continental Divide, north to about the McDonald Pass area, and also into the Rocky Mountain Front region of Montana. This is a *Pseudotsuga menziesii*-dominated system without the maritime floristic composition; these are forests and woodlands occurring in the central Rockies where the southern monsoon influence is less and maritime climate regime is not important. This system includes extensive *Pseudotsuga menziesii* forests, occasionally with *Pinus flexilis* on calcareous substrates, and *Pinus contorta* at higher elevations. True firs, such as *Abies concolor*, *Abies grandis*, and

Abies lasiocarpa, are absent in these occurrences, but *Picea engelmannii* can occur in some stands. Understory components include shrubs such as *Physocarpus malvaceus, Juniperus communis, Symphoricarpos oreophilus*, and *Mahonia repens* and graminoids such as *Calamagrostis rubescens, Carex rossii*, and *Leucopoa kingii*. The fire regime is of mixed severity with moderate frequency. This system often occurs at the lower treeline immediately above valley grasslands, or sagebrush steppe and shrublands. Sometimes there may be a bath-tub ring of *Pinus ponderosa* at lower elevations or *Pinus flexilis* between the valley nonforested and the solid *Pseudotsuga menziesii* forest. In the Wyoming Basins, this system occurs as isolated stands of *Pseudotsuga menziesii*, with *Artemisia tridentata, Pseudoroegneria spicata, Leucopoa kingii*, and *Carex rossii* (NatureServe 2012).

Northern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest

This ecological system is composed of highly variable montane coniferous forests found in the interior Pacific Northwest, from southernmost interior British Columbia, eastern Washington, eastern Oregon, northern Idaho, western and north-central Montana, and south along the east slope of the Cascades in Washington and Oregon. In central Montana, it occurs on mountain islands (the Snowy Mountains). This system is associated with a submesic climate regime with annual precipitation ranging from 20 to 40 inches (50 to 100 centimeters), with a maximum in winter or late spring. Winter snowpacks typically melt off in early spring at lower elevations. Elevations range from 1,500 to 6,300 feet (460 to 1,920 meters). Most occurrences of this system are dominated by a mix of *Pseudotsuga menziesii* and *Pinus ponderosa* (but there can be one without the other) and other typically seral species, including *Pinus contorta, Pinus monticola* (not in central Montana), and *Larix occidentalis* (not in central Montana). *Picea engelmannii* (or *Picea glauca* or their hybrid) becomes increasingly common towards the eastern edge of the range. The nature of this forest system is a matrix of large patches dominated or codominated by one or combinations of the above species; *Abies grandis* (a fire-sensitive, shade-tolerant species not occurring in central Montana) has increased on many sites once dominated by *Pseudotsuga menziesii* and *Pinus ponderosa*, which were formerly maintained by low-severity wildfire.

Presettlement fire regimes may have been characterized by frequent, low-intensity ground fires that maintained relatively open stands of a mix of fire-resistant species. Under present conditions the fire regime is mixed severity and more variable, with stand-replacing fires more common, and the forests are more homogeneous. With vigorous fire suppression, longer fire-return intervals are now the rule, and multi-layered stands of *Pseudotsuga menziesii, Pinus ponderosa*, and/or *Abies grandis* provide fuel ladders, making these forests more susceptible to high-intensity, stand-replacing fires. They are very productive forests that have been priorities for timber production. They rarely form either upper or lower timberline forests. Understories are dominated by graminoids, such as *Pseudoroegneria spicata, Calamagrostis rubescens, Carex geyeri*, and *Carex rossii* that may be associated with a variety of shrubs, such as *Acer glabrum, Juniperus communis, Physocarpus malvaceus, Symphoricarpos albus, Spiraea betulifolia*, or *Vaccinium membranaceum* on mesic sites. *Abies concolor* and *Abies grandis* x *concolor* hybrids in central Idaho (the Salmon Mountains) are included here but have very restricted range in this area. *Abies concolor* and *Abies grandis* in the Blue Mountains of Oregon are probably hybrids of the two and mostly *Abies grandis* (NatureServe 2012).

Northern Rocky Mountain Mesic Montane Mixed Conifer Forest

This ecological system occurs in the northern Rockies of western Montana west into northeastern Washington and southern British Columbia. These are vegetation types dominated by *Tsuga heterophylla* and *Thuja plicata* in most cases, found in areas influenced by incursions of mild, wet, Pacific maritime air masses. Much of the annual precipitation occurs as rain; but where snow does occur, it can generally be melted by rain during warm winter storms. Occurrences generally are found on all slopes and aspects but grow best on sites with high soil moisture, such as toeslopes and bottomlands. At the periphery of its

distribution, this system is confined to moist canyons and cooler, moister aspects. Generally these are moist, non-flooded or upland sites that are not saturated yearlong. Along with *Tsuga heterophylla* and *Thuja plicata*, *Pseudotsuga menziesii* commonly shares the canopy, and *Pinus monticola, Pinus contorta, Abies grandis, Taxus brevifolia*, and *Larix occidentalis* are major associates. Mesic *Abies grandis* associations are included in this system, and *Abies grandis* is often the dominant species in these situations; *Tsuga heterophylla* and *Thuja plicata* can both be absent. *Cornus nuttallii* may be present in some situations. *Picea engelmannii, Abies lasiocarpa*, and *Pinus ponderosa* may be present but only on the coldest or warmest and driest sites. *Linnaea borealis, Paxistima myrsinites, Alnus incana, Acer glabrum, Spiraea betulifolia, Symphoricarpos hesperius (= Symphoricarpos mollis* ssp. *hesperius), Cornus canadensis, Rubus parviflorus, Menziesia ferruginea*, and *Vaccinium membranaceum* are common shrub species. The composition of the herbaceous layer reflects local climate and degree of canopy closure; it is typically highly diverse in all but closed-canopy conditions. Important forbs and ferns include *Actaea rubra, Anemone piperi, Aralia nudicaulis, Asarum caudatum, Clintonia uniflora, Coptis occidentalis, Thalictrum occidentale, Tiarella trifoliata, Trientalis borealis, Trillium ovatum, Viola glabella, Gymnocarpium dryopteris, Polystichum munitum*, and *Adiantum pedatum*. Typically, stand-replacement, fire-return intervals are from 150 to 500 years, with moderate-severity fire intervals from 50 to 100 years (NatureServe 2012).

Rocky Mountain Lodgepole Pine Forest

This ecological system is widespread in upper montane to subalpine elevations of the Rocky Mountains, Intermountain West region, north into the Canadian Rockies, and east into the mountain islands of north-central Montana. These are subalpine forests where the dominance of *Pinus contorta* is related to fire history and topo-edaphic conditions. Following stand-replacing fires, *Pinus contorta* will rapidly colonize and develop into dense, even-aged stands. Most forests in this ecological system occur as early- to mid-successional forests that developed following fires. This system includes *Pinus contorta*-dominated stands that, while typically persistent for greater than 100-year time frames, may succeed to spruce-fir; in the southern and central Rocky Mountains, it is seral to Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland. More northern occurrences are seral to Rocky Mountain Subalpine Mesic-Wet Spruce-Fir Forest and Woodland. Soils supporting these forests are typically well-drained, gravelly, coarse-textured, acidic, and rarely formed from calcareous parent materials.

These forests are dominated by *Pinus contorta* with shrub, grass, or barren understories. Sometimes there are intermingled mixed conifer/*Populus tremuloides* stands, with the latter occurring with inclusions of deeper, typically fine-textured soils. The shrub stratum may be conspicuous to absent; common species include *Arctostaphylos uva-ursi, Ceanothus velutinus, Linnaea borealis, Mahonia repens, Menziesia ferruginea* (in northern occurrences), *Purshia tridentata, Rhododendron albiflorum* (in northern occurrences), *Spiraea betulifolia, Spiraea douglasii, Shepherdia canadensis, Vaccinium caespitosum, Vaccinium scoparium, Vaccinium membranaceum, Symphoricarpos albus*, and *Ribes* spp. In southern interior British Columbia, this system is usually an open lodgepole pine forest found extensively between 1,640 and 5,250 feet (500 and 1,600 meters) elevation in the Columbia Range. In the Interior Cedar Hemlock and Interior Douglas-fir zones, *Tsuga heterophylla* or *Pseudotsuga menziesii* may be present. In Alberta, species composition indicates the transition to more boreal floristics, including such species as *Empetrum nigrum, Ledum groenlandicum, Leymus innovatus*, and more abundant lichens or mosses such as *Cladina* spp., *Hylocomium splendens*, and *Pleurozium schreberi* (NatureServe 2012).

Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland

Engelmann spruce and subalpine fir forests comprise a substantial part of the subalpine forests of the Cascades and Rocky Mountains from southern British Columbia east into Alberta and south into New Mexico and the Intermountain region. They also occur on mountain islands of north-central Montana.

They are the matrix forests of the subalpine zone, with elevations ranging from 4,100 feet (1,275 meters) in its northern distribution to 11,000 feet (3,355 meters) in the south. They often represent the highest elevation forests in an area. Sites in this system are cold year-round, and precipitation is predominantly in the form of snow, which may persist until late summer. Snowpacks are deep and late-lying, and summers are cool. Frost is possible almost all summer and may be common in restricted topographic basins and benches. Despite their wide distribution, the tree canopy characteristics are remarkably similar with *Picea engelmannii* and *Abies lasiocarpa* dominating, either mixed or alone. *Pseudotsuga menziesii* may persist in occurrences of this system for long periods without regeneration. *Pinus contorta* is common in many occurrences, and patches of pure *Pinus contorta* are not uncommon, as well as mixed conifer/*Populus tremuloides* stands. In some areas, such as Wyoming, *Picea engelmannii*-dominated forests are on limestone or dolomite, while nearby codominated spruce-fir forests are on granitic or volcanic rocks. Upper elevation examples may have more woodland physiognomy, and *Pinus albicaulis* can be a seral component. What have been called ribbon forests or tree islands by some authors are included here; they can be found at the upper treeline in many areas of the Rockies, including the central and northern ranges in Colorado and the Medicine Bow and Bighorn ranges of Wyoming. These are more typically islands or ribbons of trees, sometimes with a krummholz form, with open-meadow areas in a mosaic. These patterns are controlled by snow deposition and wind-blown ice. Xeric species may include *Juniperus communis, Linnaea borealis, Mahonia repens,* or *Vaccinium scoparium*. In the Bighorn Mountains, *Artemisia tridentata* is a common shrub. More northern occurrences often have taller, more mesic shrub and herbaceous species, such as *Empetrum nigrum, Rhododendron albiflorum*, and *Vaccinium membranaceum*. Disturbance includes occasional blowdown, insect outbreaks, and stand-replacing fire. The mean return interval for stand-replacing fire is 222 years as estimated in southeastern British Columbia (NatureServe 2012).

Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland

Engelmann spruce and subalpine fir forests comprise a substantial part of the subalpine forests of the Cascades and Rocky Mountains from southern British Columbia east into Alberta and south into New Mexico and the Intermountain region. They are the matrix forests of the subalpine zone, with elevations ranging from 4,100 feet (1,275 meters) in its northern distribution to 11,000 feet (3,355 meters) in the south. They often represent the highest elevation forests in an area. Sites in this system are cold year-round, and precipitation is predominantly in the form of snow, which may persist until late summer. Snowpacks are deep and late-lying, and summers are cool. Frost is possible almost all summer and may be common in restricted topographic basins and benches. Despite their wide distribution, the tree canopy characteristics are remarkably similar with *Picea engelmannii* and *Abies lasiocarpa* dominating, either mixed or alone. *Pseudotsuga menziesii* may persist in occurrences of this system for long periods without regeneration. *Pinus contorta* is common in many occurrences, and patches of pure *Pinus contorta* are not uncommon, as well as mixed conifer/*Populus tremuloides* stands. In some areas, such as Wyoming, *Picea engelmannii*-dominated forests are on limestone or dolomite, while nearby codominated spruce-fir forests are on granitic or volcanic rocks. Xeric species may include *Juniperus communis, Linnaea borealis, Mahonia repens,* or *Vaccinium scoparium*. More northern occurrences often have taller, more mesic shrub and herbaceous species, such as *Empetrum nigrum, Rhododendron albiflorum*, and *Vaccinium membranaceum*. Disturbance includes occasional blow-down, insect outbreaks, and stand-replacing fire (University of Idaho 2012).

Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland

This ecological system occurs throughout the Rocky Mountains, south of Montana, on dry, rocky ridges and slopes near upper treeline above the matrix spruce-fir forest. It extends down to the lower montane in the northeastern Great Basin Mountains where it is dominated by *Pinus flexilis*. Sites are harsh, exposed to desiccating winds, with rocky substrates and a short growing season that limit plant growth. Higher-

elevation occurrences are found well into the subalpine-alpine transition on wind-blasted, mostly west-facing slopes and exposed ridges. Calcareous substrates are important for *Pinus flexilis*-dominated communities in the northern Rocky Mountains and possibly elsewhere. The open tree canopy is often patchy and is strongly dominated by *Pinus flexilis* or *Pinus aristata* with the latter restricted to southern Colorado, northern New Mexico and the San Francisco Mountains in Arizona. In the Wyoming Rockies and northern Great Basin, *Pinus albicaulis* is found in some occurrences, but is a minor component. Other trees such as *Juniperus* spp., *Pinus contorta, Pinus ponderosa*, or *Pseudotsuga menziesii* are occasionally present. *Arctostaphylos uva-ursi, Cercocarpus ledifolius, Juniperus communis, Mahonia repens, Purshia tridentata, Ribes montigenum*, or *Vaccinium* spp. may form an open shrub layer in some stands. The herbaceous layer, if present, is generally sparse and composed of xeric graminoids, such as *Calamagrostis purpurascens, Festuca arizonica, Festuca idahoensis, Festuca thurberi*, or *Pseudoroegneria spicata*, or more alpine plants (NatureServe 2012).

Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland

This is a highly variable ecological system of the montane zone of the Rocky Mountains. It occurs throughout the southern Rockies and north and west into Utah, Nevada, Wyoming, and Idaho. These are mixed-conifer forests occurring on all aspects at elevations ranging from 3,900 to 10,825 feet (1,200 to 3,300 meters). Rainfall averages less than 29.5 inches (75 centimeters) per year (16 to 24 inches [40 to 60 centimeters), with summer monsoons during the growing season contributing substantial moisture. The composition and structure of the overstory are dependent on the temperature and moisture relationships of the site and the successional status of the occurrence. *Pseudotsuga menziesii* and *Abies concolor* are most frequent, but *Pinus ponderosa* may be present to codominant. *Pinus flexilis* is common in Nevada. *Pseudotsuga menziesii* forests occupy drier sites, and *Pinus ponderosa* is a common codominant. *Abies concolor*-dominated forests occupy cooler sites, such as upper slopes at higher elevations, canyon sideslopes, ridgetops, and north- and east-facing slopes that burn somewhat infrequently. *Picea pungens* is most often found in cool, moist locations, often occurring as smaller patches in a matrix of other associations. As many as seven conifers can be found growing in the same occurrence, and there is a number of cold-deciduous shrub and graminoid species common, including *Arctostaphylos uva-ursi, Mahonia repens, Paxistima myrsinites, Symphoricarpos oreophilus, Jamesia americana, Quercus gambelii*, and *Festuca arizonica*. This system was undoubtedly characterized by a mixed-severity fire regime in its natural condition, characterized by a high degree of variability in lethality and return interval (NatureServe 2012).

Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland

These are mixed conifer forests of the Rocky Mountains west into the ranges of the Great Basin, occurring predominantly in cool ravines and on north-facing slopes. Elevations range from 3,900 to 10,825 feet (1,200 to 3,300 meters). Occurrences of this system are found on cooler and more mesic sites than Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland. Such sites include lower and middle slopes of ravines, along stream terraces, moist, concave topographic positions, and north- and east-facing slopes that burn somewhat infrequently. *Pseudotsuga menziesii* and *Abies concolor* are most common canopy dominants, but *Picea engelmannii, Picea pungens*, or *Pinus ponderosa* may be present. This system includes mixed conifer (*Populus tremuloides)* stands. A number of cold-deciduous shrub species can occur, including *Acer glabrum, Acer grandidentatum, Alnus incana, Betula occidentalis, Cornus sericea, Jamesia americana, Physocarpus malvaceus, Robinia neomexicana, Vaccinium membranaceum*, and *Vaccinium myrtillus*. Herbaceous species include *Bromus ciliatus, Carex geyeri, Carex rossii, Carex siccata, Muhlenbergia virescens, Pseudoroegneria spicata, Erigeron eximius, Fragaria virginiana, Luzula parviflora, Osmorhiza berteroi, Packera cardamine, Thalictrum occidentale*,

and *Thalictrum fendleri*. Naturally occurring fires are of variable return intervals and mostly light, erratic, and infrequent due to the cool, moist conditions.

J.1.10 Mountain Shrub

Harvested Forest-Shrub Regeneration

This ecological system includes areas dominated by shrubs; less than 16 feet (5 meters) tall with shrub canopy typically greater than 20 percent of total vegetation. This class includes true shrubs, young trees in early successional stage, or trees stunted from environmental conditions following a tree harvesting event (University of Idaho 2012).

Inter-Mountain Basins Curl-leaf Mountain-Mahogany Woodland and Shrubland

This ecological system occurs in hills and mountain ranges of the Intermountain West basins from the eastern foothills of the Sierra Nevada northeast to the foothills of the Bighorn Mountains. It typically occurs from 1,950 feet (600 meters) to more than 8,600 feet (2,650 meters) on rocky outcrops or escarpments and forms small- to large-patch stands in forested areas. Most stands occur as shrublands on ridges and steep rimrock slopes, but they may be composed of small trees in steppe areas. Scattered junipers or pines also may occur. This system includes both woodlands and shrublands dominated by *Cercocarpus ledifolius*. *Artemisia tridentata* ssp. *vaseyana*, *Purshia tridentata*, with species of *Arctostaphylos*, *Ribes*, or *Symphoricarpos* often are present. Undergrowth often is very sparse and dominated by bunch grasses, usually *Pseudoroegneria spicata* and *Festuca idahoensis*. *Cercocarpus ledifolius* is a slow-growing, drought-tolerant species that generally does not resprout after burning and needs the protection from fire that rocky sites provide (NatureServe 2012).

Northern Rocky Mountain Montane-Foothill Deciduous Shrubland

This shrubland ecological system is found in the lower montane and foothill regions around the Columbia Basin, and north and east into the northern Rockies, including Alberta and British Columbia. These shrublands typically occur below the treeline, in the matrix of surrounding low-elevation grasslands and sagebrush shrublands. They also occur in the ponderosa pine and Douglas-fir zones, but rarely up into the subalpine zone (on dry sites). The shrublands are usually found on steep slopes of canyons and in areas with some soil development, either loess deposits or volcanic clays; they occur on all aspects. Fire, flooding and erosion all affect these shrublands, but they typically will persist on sites for long periods. These communities develop near talus slopes as garlands, at the heads of dry drainages, and toeslopes in the moist shrub-steppe and steppe zones.

Physocarpus malvaceus, *Prunus emarginata*, *Prunus virginiana*, *Rosa* spp., *Rhus glabra*, *Acer glabrum*, *Amelanchier alnifolia*, *Symphoricarpos albus*, *Symphoricarpos oreophilus*, and *Holodiscus discolor* are the most common dominant shrubs, occurring alone or any combination. In the Alberta's Upper and Lower Foothills subregions, common shrubs include *Arctostaphylos uva-ursi*, *Juniperus communis*, *Symphoricarpos* spp., *Amelanchier alnifolia*, and *Rosa* spp. *Rubus parviflorus* and *Ceanothus velutinus* are other important shrubs in this system, being more common in montane occurrences than in subalpine situations. Occurrences in central and eastern Wyoming can include *Artemisia tridentata* ssp. *vaseyana* and *Cercocarpus montanus*, but neither of these is dominant, and where they occur, the stands are truly mixes of shrubs, often with *Amelanchier alnifolia*, *Prunus virginiana*, and others being the predominant taxa. In moist areas, *Crataegus douglasii* can be common. *Shepherdia canadensis* and *Spiraea betulifolia* can be abundant in some cases but also occur in Northern Rocky Mountain Subalpine Deciduous Shrubland. *Festuca idahoensis*, *Festuca campestris*, *Calamagrostis rubescens*, *Carex geyeri*, *Koeleria macrantha*, *Pseudoroegneria spicata*, and *Poa secunda* are the most important grasses. *Achnatherum thurberianum* and *Leymus cinereus* can be locally important. *Poa pratensis* and *Phleum pratense* are

common introduced grasses. *Geum triflorum, Potentilla gracilis, Lomatium triternatum, Balsamorhiza sagittata*, and species of *Eriogonum, Phlox,* and *Erigeron* are important forbs (NatureServe 2012).

Northern Rocky Mountain Subalpine Deciduous Shrubland

This shrubland ecological system is found in the zone of continuous forest in the upper montane and lower subalpine zones of the northern Rocky Mountains. Soils tend to be moist to wet. Stands typically are initiated by fires and will persist on sites for long periods because of repeated burns and changes in the presence of volatile oils in the soil that impedes tree regeneration. *Menziesia ferruginea, Rhamnus alnifolia, Ribes lacustre, Rubus parviflorus, Alnus viridis, Rhododendron albiflorum, Sorbus scopulina, Sorbus sitchensis, Vaccinium myrtillus, Vaccinium scoparium,* and *Vaccinium membranaceum* are the most common dominant shrubs, occurring alone or in any combination. Other shrubs can include *Shepherdia canadensis* and *Ceanothus velutinus*, but these also commonly occur in Northern Rocky Mountain Montane-Foothill Deciduous Shrubland. *Rubus parviflorus* and *Ceanothus velutinus* are occasionally present, being more common in montane shrublands than in this subalpine system. Important forbs include *Xerophyllum tenax, Chamerion angustifolium*, and *Pteridium aquilinum*, reflecting the mesic nature of many of these shrublands (NatureServe 2012).

Rocky Mountain Gambel Oak-Mixed Montane Shrubland

This ecological system occurs in the mountains, plateaus, and foothills of the southern Rocky Mountains and Colorado Plateau, including the Uinta and Wasatch ranges and the Mogollon Rim. These shrublands are most commonly found along dry foothills, lower mountain slopes, and at the edge of the western Great Plains from approximately 6,500 to 9500 feet (2,000 to 2,900 meters), and often are situated above pinyon-juniper woodlands. Substrates are variable and include soil types ranging from calcareous, heavy, fine-grained loams to sandy loams, gravelly loams, clay loams, deep alluvial sand, or coarse gravel. The vegetation is typically dominated by *Quercus gambelii* alone or codominant with *Amelanchier alnifolia, Amelanchier utahensis, Artemisia tridentata, Cercocarpus montanus, Prunus virginiana, Purshia stansburiana, Purshia tridentata, Robinia neomexicana, Symphoricarpos oreophilus*, or *Symphoricarpos rotundifolius*. There may be inclusions of other mesic montane shrublands with *Quercus gambelii* absent or as a relatively minor component. This ecological system intergrades with the lower montane-foothills shrubland system and shares many of the same site characteristics. Density and cover of *Quercus gambelii* and *Amelanchier* spp. often increase after fire (NatureServe 2012).

Rocky Mountain Lower Montane-Foothill Shrubland

This ecological system is found in the foothills, canyon slopes, and lower mountains of the Rocky Mountains and on outcrops and canyon slopes in the western Great Plains. It ranges from southern New Mexico, extending north into Wyoming, and west into the Intermountain West region. These shrublands occur between 4,900 and 9,500 feet (1,500 and 2,900 meters) elevation and are usually associated with exposed sites, rocky substrates, and dry conditions, which limit tree growth. It is common where *Quercus gambelii* is absent, such as the northern Colorado Front Range and in drier foothills and prairie hills. This system is generally drier than Rocky Mountain Gambel Oak-Mixed Montane Shrubland but may include mesic montane shrublands where *Quercus gambelii* does not occur. *Cercocarpus montanus* dominates pure stands in parts of Wyoming and Colorado. Scattered trees or inclusions of grassland patches or steppe may be present, but the vegetation is typically dominated by a variety of shrubs, including *Amelanchier utahensis, Cercocarpus montanus, Purshia tridentata, Rhus trilobata, Ribes cereum, Symphoricarpos oreophilus*, or *Yucca glauca*. Grasses are represented as species of *Muhlenbergia, Bouteloua, Hesperostipa*, and *Pseudoroegneria spicata*. Fires play an important role in this system as the dominant shrubs usually have a severe die-back, although some plants will stump sprout. *Cercocarpus montanus* requires a disturbance such as fire to reproduce, either by seed sprout or root-crown sprouting.

Fire suppression may have allowed an invasion of trees into some of these shrublands, but in many cases sites are too xeric for tree growth. In Wyoming, stands where *Cercocarpus montanus* is a component of mixed shrublands are placed in the Northern Rocky Mountain Montane-Foothill Deciduous Shrubland (NatureServe 2012).

J.1.11 Pinyon-Juniper

Colorado Plateau Pinyon-Juniper Shrubland

This ecological system is characteristic of the rocky mesatops and slopes on the Colorado Plateau and western slope of Colorado, but these stunted tree shrublands may extend further upslope along the low-elevation margins of taller pinyon-juniper woodlands. Sites are drier than Colorado Plateau Pinyon-Juniper Woodland. Substrates are shallow/rocky and shaly soils at lower elevations 3,900 to 6,500 feet (1,200 to 2,000 meters). Sparse examples of the system grade into Colorado Plateau Mixed Bedrock Canyon and Tableland. The vegetation is dominated by dwarfed (usually less than 9.5 feet [3 meters] tall) *Pinus edulis* and/or *Juniperus osteosperma* trees forming extensive tall shrublands in the region along low-elevation margins of pinyon-juniper woodlands. Other shrubs, if present, may include *Artemisia nova, Artemisia tridentata* ssp. *wyomingensis, Chrysothamnus viscidiflorus*, or *Coleogyne ramosissima*. Herbaceous layers are sparse to moderately dense and typically composed of xeric graminoids (University of Idaho 2012).

Colorado Plateau Pinyon-Juniper Woodland

This ecological system occurs in dry mountains and foothills of the Colorado Plateau region including the Western Slope of Colorado to the Wasatch Range, south to the Mogollon Rim, and east into the northwestern corner of New Mexico. It is typically found at lower elevations ranging from 4,900 to 8,000 feet (1,500 to 2,440 meters). These woodlands occur on warm, dry sites on mountain slopes, mesas, plateaus, and ridges. Severe climatic events occurring during the growing season, such as frosts and drought, are thought to limit the distribution of pinyon-juniper woodlands to relatively narrow altitudinal belts on mountainsides. Soils supporting this system vary in texture, ranging from stony, cobbly, gravelly sandy loams to clay loam or clay. *Pinus edulis* and/or *Juniperus osteosperma* dominate the tree canopy. In the southern portion of the Colorado Plateau in northern Arizona and northwestern New Mexico, *Juniperus monosperma* and hybrids of *Juniperus* spp. may dominate or codominate the tree canopy. *Juniperus scopulorum* may codominate or replace *Juniperus osteosperma* at higher elevations. Understory layers are variable and may be dominated by shrubs and graminoids or be absent. Associated species include *Arctostaphylos patula, Artemisia tridentata, Cercocarpus intricatus, Cercocarpus montanus, Coleogyne ramosissima, Purshia stansburiana, Purshia tridentata, Quercus gambelii, Bouteloua gracilis, Pleuraphis jamesii, Pseudoroegneria spicata, Poa secunda*, or *Poa fendleriana*. This system occurs at higher elevations than Great Basin Pinyon-Juniper Woodland and Colorado Plateau shrubland systems where sympatric (NatureServe 2012).

Great Basin Pinyon-Juniper Woodland

This ecological system occurs on dry mountain ranges of the Great Basin region and eastern foothills of the Sierra Nevada south in scattered locations throughout southern California. It is typically found at lower elevations ranging from 5,200 to 8,500 feet (1,600 to 2,600 meters). These woodlands occur on warm, dry sites on mountain slopes, mesas, plateaus, and ridges. Severe climatic events occurring during the growing season, such as frosts and drought, are thought to limit the distribution of pinyon-juniper woodlands to relatively narrow altitudinal belts on mountainsides. Woodlands dominated by a mix of *Pinus monophylla* and *Juniperus osteosperma*, pure or nearly pure occurrences of *Pinus monophylla*, or woodlands dominated solely by *Juniperus osteosperma* comprise this system, but in some regions of southern California, *Juniperus osteosperma* is replaced by *Juniperus californica*. *Cercocarpus ledifolius*

is a common associate. On the east slope of the Sierras in California, *Pinus jeffreyi* and *Juniperus occidentalis* var. *australis* may be components of these woodlands. Understory layers are variable. Associated species include shrubs such as *Arctostaphylos patula, Artemisia arbuscula, Artemisia nova, Artemisia tridentata, Cercocarpus ledifolius, Cercocarpus intricatus, Coleogyne ramosissima, Yucca brevifolia, Quercus gambelii, Quercus turbinella, Quercus john-tuckeri, Juniperus californica, Quercus chrysolepis*, and bunch grasses *Hesperostipa comata, Festuca idahoensis, Pseudoroegneria spicata, Leymus cinereus (= Elymus cinereus)*, and *Poa fendleriana*. This system occurs at lower elevations than Colorado Plateau Pinyon-Juniper Woodland where sympatric (NatureServe 2012).

Inter-Mountain Basins Juniper Savanna

This widespread ecological system occupies dry foothills and sandsheets of western Colorado, northwestern New Mexico, northern Arizona, Utah, and west into the Great Basin of Nevada and southern Idaho. It is typically found at lower elevations ranging from 4,920 to 7,500 feet (1,500 to 2,300 meters). This system is generally found at lower elevations and more xeric sites than Great Basin Pinyon-Juniper Woodland or Colorado Plateau Pinyon-Juniper Woodland. These occurrences are found on lower mountain slopes, hills, plateaus, basins, and flats (often where juniper is expanding into semi-desert grasslands and steppe). The vegetation is typically open savanna, although there may be inclusions of denser juniper woodlands. This savanna is typically dominated by *Juniperus osteosperma* trees with a high cover of perennial bunch grasses and forbs with *Bouteloua gracilis, Hesperostipa comata*, and *Pleuraphis jamesii* being most common. In the southern Colorado Plateau, *Juniperus monosperma* or juniper hybrids may dominate the tree layer. Pinyon trees typically are not present because sites are outside the ecological or geographic range of *Pinus edulis* and *Pinus monophylla*. It has been suggested that all *Juniperus osteosperma* stands in Wyoming be placed in Colorado Plateau Pinyon-Juniper Woodland. This savanna system does not occur in Wyoming (NatureServe 2012).

Rocky Mountain Foothill Limber Pine-Juniper Woodland

This ecological system occurs in foothill and lower montane zones in the Rocky Mountains from northern Montana south to central Colorado and on escarpments across Wyoming extending out into the western Great Plains. Elevation ranges from 3,280 to 7,870 feet (1,000 to 2,400 meters). It occurs generally below continuous forests of *Pseudotsuga menziesii* or *Pinus ponderosa* and can occur in large stands well in the zone of continuous forests in the northeastern Rocky Mountains. It is restricted to shallow soils and fractured bedrock derived from a variety of parent material, including limestone, sandstone, dolomite, granite, and colluvium. Soils have a high rock component (typically more than 50 percent cover) and are coarse- to fine-textured, often gravelly and calcareous. Slopes are typically moderately steep to steep. At higher elevations, it is limited to the most xeric aspects on rock outcrops, and at lower elevations to the relatively mesic north aspects. Fire is infrequent and spotty because rocky substrates prevent a continuous vegetation canopy needed to spread.

Vegetation is characterized by an open-tree canopy or patchy woodland that is dominated by either *Pinus flexilis, Juniperus osteosperma*, or *Juniperus scopulorum*. *Pinus edulis* is not present. A sparse to moderately dense short-shrub layer, if present, may include a variety of shrubs, such as *Arctostaphylos uva-ursi, Artemisia nova, Artemisia tridentata, Cercocarpus ledifolius, Cercocarpus montanus, Dasiphora fruticosa* ssp. *floribunda, Ericameria nauseosa, Juniperus horizontalis, Purshia tridentata, Rhus trilobata, Rosa woodsii, Shepherdia canadensis* (important in Montana stands), *Symphoricarpos albus*, or *Symphoricarpos oreophilus*. Herbaceous layers are generally sparse, but range to moderately dense, and typically are dominated by perennial graminoids such as *Bouteloua gracilis, Festuca idahoensis, Festuca campestris, Danthonia intermedia, Leucopoa kingii, Hesperostipa comata, Koeleria macrantha, Piptatherum micranthum, Poa secunda*, or *Pseudoroegneria spicata*. In this ecological system, there may be small patches of grassland or shrubland composed of some of the above species. In

Wyoming, some limber pine stands are found up to 8,000 feet (2,440 meters) and are still included in this system (NatureServe 2012).

Southern Rocky Mountain Pinyon-Juniper Woodland

This southern Rocky Mountain ecological system occurs on dry mountains and foothills in southern Colorado east of the Continental Divide, in mountains and plateaus of north-central New Mexico, and extends out onto limestone breaks in the southeastern Great Plains. These woodlands occur on warm, dry sites on mountain slopes, mesas, plateaus, and ridges. Severe climatic events occurring during the growing season, such as frosts and drought, are thought to limit the distribution of pinyon-juniper woodlands to relatively narrow altitudinal belts on mountainsides. Soils supporting this system vary in texture ranging from stony, cobbly, gravelly sandy loams to clay loam or clay. *Pinus edulis* and/or *Juniperus monosperma* dominate the tree canopy. *Juniperus scopulorum* may codominate or replace *Juniperus monosperma* at higher elevations. Stands with *Juniperus osteosperma* are representative of the Colorado Plateau and are not included in this system. In southern transitional areas between Madrean Pinyon-Juniper Woodland and Southern Rocky Mountain Pinyon-Juniper Woodland in central New Mexico, *Juniperus deppeana* becomes common. Understory layers are variable and may be dominated by shrubs and graminoids or be absent. Associated species are more typical of southern Rocky Mountains than the Colorado Plateau and include *Artemisia bigelovii, Cercocarpus montanus, Quercus gambelii, Achnatherum scribneri, Bouteloua gracilis, Festuca arizonica*, or *Pleuraphis jamesii* (NatureServe 2012).

J.1.12 Ponderosa Pine

Northern Rocky Mountain Foothill Conifer Wooded Steppe

This inland Pacific Northwest ecological system occurs in the foothills of the northern Rocky Mountains in the Columbia Plateau region and west along the foothills of the Modoc Plateau and eastern Cascades into southern interior British Columbia. It also occurs east across Idaho into the eastern foothills of the Montana Rockies. The system also may occur on the lower treeline slopes of the Wyoming Rockies. These wooded steppes occur at the lower treeline/ecotone between grasslands or shrublands and forests and woodlands, typically on warm, dry, exposed sites too droughty to support a closed tree canopy. This is not a fire-maintained system. The savanna character results from a climate-edaphic interaction that results in widely scattered trees over shrubs or grasses, and even in the absence of fire, a woodland or forest structure will not be obtained. Elevations range from less than 1,640 feet (500 meters) in British Columbia to 5,200 feet (1,600 meters) in the central Idaho Mountains. Occurrences are found on all slopes and aspects; however, moderately steep to very steep slopes or ridgetops are most common. This system can occur in association with cliff and canyon systems. It generally occurs on glacial till, glacio-fluvial sand and gravel, dune, basaltic rubble, colluvium, to deep loess or volcanic ash-derived soils, with characteristic features of good aeration and drainage, coarse textures, circumneutral to slightly acidic pH, an abundance of mineral material, rockiness, and periods of drought during the growing season. These also can occur on areas of sand dunes, scablands, and pumice where the edaphic conditions limit tree abundance.

Pinus ponderosa (vars. *ponderosa* and *scopulorum*) and *Pseudotsuga menziesii* are the predominant conifers (not always together); *Pinus flexilis* may be present or common in the tree canopy. In interior British Columbia, *Pseudotsuga menziesii* is the characteristic canopy dominant. In transition areas with big sagebrush steppe systems, *Purshia tridentata, Artemisia tridentata* ssp. *wyomingensis, Artemisia tridentata* ssp. *tridentata*, and *Artemisia tripartita* may be common in fire-protected sites such as rocky areas. Deciduous shrubs, such as *Physocarpus malvaceus, Symphoricarpos albus*, or *Spiraea betulifolia*, can be abundant in more northerly sites or more moist climates. Important grass species include *Pseudoroegneria spicata, Poa secunda, Hesperostipa* spp., *Achnatherum* spp., and *Elymus elymoides* (NatureServe 2012).

Southern Rocky Mountain Ponderosa Pine Woodland

This very widespread ecological system is most common throughout the cordillera of the Rocky Mountains, from the Greater Yellowstone region south. It is also found in the Colorado Plateau region, west into scattered locations of the Great Basin. Its easternmost extent in Wyoming is in the Bighorn Mountains. These woodlands occur at the lower treeline/ecotone between grassland or shrubland and more mesic coniferous forests typically in warm, dry, exposed sites. Elevations range from less than 6,230 feet (1,900 meters) in northern Wyoming to 9,180 feet (2,800 meters) in the New Mexico Mountains. Occurrences are found on all slopes and aspects; however, moderately steep to very steep slopes or ridgetops are most common. This ecological system generally occurs on soils derived from igneous, metamorphic, and sedimentary material with characteristic features of good aeration and drainage, coarse textures, circumneutral to slightly acidic pH, an abundance of mineral material, rockiness, and periods of drought during the growing season. Northern Rocky Mountain Ponderosa Pine Woodland and Savanna in the eastern Cascades, Okanogan, and northern Rockies regions receives winter and spring rains, and thus has a greater spring green-up than the drier woodlands in the central Rockies.

Pinus ponderosa (primarily var. *scopulorum* and var. *ponderosa* (= var. *brachyptera*)) is the predominant conifer; *Pseudotsuga menziesii, Pinus edulis, Pinus contorta, Populus tremuloides*, and *Juniperus* spp. may be present in the tree canopy. The understory is usually shrubby, with *Artemisia nova, Artemisia tridentata, Arctostaphylos patula, Arctostaphylos uva-ursi, Cercocarpus montanus, Purshia stansburiana, Purshia tridentata, Quercus gambelii, Symphoricarpos* spp., *Prunus virginiana, Amelanchier alnifolia* (less so in Montana), and *Rosa* spp. common species. *Pseudoroegneria spicata, Pascopyrum smithii*, and species of *Hesperostipa, Achnatherum, Festuca, Muhlenbergia*, and *Bouteloua* are some of the common grasses. Mixed fire regimes and ground fires of variable return intervals maintain these woodlands, depending on climate, degree of soil development, and understory density (NatureServe 2012).

J.1.13 Riparian

Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland

This system occurs in mountain ranges of the Great Basin and along the eastern slope of the Sierra Nevada in a broad elevation range from about 4,000 feet (1,220 meters) to more than 7,000 feet (2,135 meters). This system often occurs as a mosaic of multiple communities that are tree-dominated with a diverse shrub component. The variety of plant associations connected to this system reflects elevation, stream gradient, floodplain width, and flooding events. Dominant trees may include *Abies concolor, Alnus incana, Betula occidentalis, Populus angustifolia, Populus balsamifera* ssp. *trichocarpa, Populus fremontii, Salix laevigata, Salix gooddingii*, and *Pseudotsuga menziesii*. Dominant shrubs include *Artemisia cana, Cornus sericea, Salix exigua, Salix lasiolepis, Salix lemmonii*, or *Salix lutea*. Herbaceous layers often are dominated by species of *Carex* and *Juncus*, and perennial grasses and mesic forbs such *Deschampsia caespitosa, Elymus trachycaulus, Glyceria striata, Iris missouriensis, Maianthemum stellatum*, or *Thalictrum fendleri*. Introduced forage species such as *Agrostis stolonifera, Poa pratensis, Phleum pratense*, and the weedy annual *Bromus tectorum* often are present in disturbed stands. These are disturbance-driven systems that require flooding, scour, and deposition for germination and maintenance. Livestock grazing is a major influence in altering structure, composition, and function of the community (NatureServe 2012).

Introduced Riparian and Wetland Vegetation

Vegetation dominated (typically greater than 60 percent canopy cover) by introduced species. These are spontaneous, self-perpetuating, and not (immediately) the result of planting, cultivation, or human maintenance. Land occupied by introduced vegetation generally is altered (converted) permanently unless

restoration efforts are undertaken. Specifically, land cover is significantly altered/disturbed by introduced riparian and wetland vegetation (University of Idaho 2012).

Northwestern Great Plains Riparian

This system is found in the riparian areas of medium and small rivers and streams throughout the northwestern Great Plains. It is likely most common in the Northern Great Plains Steppe. This system occurs in the Upper Missouri and tributaries starting at the Niobrara, White, Cheyenne, Belle Fourche, Moreau, Grand, Heart, Little Missouri, Yellowstone, Powder, Tongue, Bighorn, Wind, Milk, Musselshell, Marias, and Teton rivers; and in Canada, the Southern Saskatchewan, Red Deer and Old Man rivers to where they extend into Rocky Mountain Lower Montane-Foothill Riparian Woodland and Shrubland or Northern Rocky Mountain Lower Montane Riparian Woodland and Shrubland. These are found on alluvial soils in highly variable landscape settings, from deep cut ravines to wide, braided streambeds. Hydrologically, these tend to be more flashy with less developed floodplain than on larger rivers, and typically dry down completely for some portion of the year. Dominant vegetation shares much with generally drier portions of larger floodplain systems downstream, but overall abundance of vegetation is generally lower. Communities in this system range from riparian forests and shrublands to gravel/sand flats. Dominant species include *Populus deltoides*, *Populus balsamifera* ssp. *trichocarpa*, *Salix* ssp., *Artemisia cana* ssp. *cana*, and *Pascopyrum smithii*. These areas often are subjected to heavy grazing and/or agriculture and can be heavily degraded. Another factor is that groundwater depletion and lack of fire have created additional species changes (NatureServe 2012).

Rocky Mountain Bigtooth Maple Ravine Woodland

This ecological system occurs in cool ravines, on toeslopes and slump benches associated with riparian areas in the northern and central Wasatch Range and Tavaputs Plateau extending into southern Idaho, as well as in scattered localities in southwestern Utah, central Arizona, and New Mexico, and the Trans-Pecos of Texas. Substrates are typically rocky colluvial or alluvial soils with favorable soil moisture. These woodlands are dominated by *Acer grandidentatum* but may include mixed stands codominated by *Quercus gambelii* or with scattered conifers. Some stands may include *Acer negundo* or *Populus tremuloides* as minor components. It also occurs on steeper, north-facing slopes at higher elevations, often adjacent to Rocky Mountain Gambel Oak-Mixed Montane Shrubland or Rocky Mountain Aspen Forest and Woodland (NatureServe 2012).

Rocky Mountain Lower Montane Riparian Woodland and Shrubland

This ecological system of the northern Rocky Mountains and the east slopes of the Cascades consists of deciduous, coniferous, and mixed conifer-deciduous forests that occur on streambanks and river floodplains of the lower montane and foothill zones. Riparian forest stands are maintained by annual flooding and hydric soils throughout the growing season. Riparian forests often are accompanied by riparian shrublands or open areas dominated by wet meadows. *Populus balsamifera* is the key indicator species. Several other tree species can be mixed in the canopy, including *Populus tremuloides*, *Betula papyrifera*, *Betula occidentalis*, *Picea mariana*, and *Picea glauca*. *Abies grandis*, *Thuja plicata*, and *Tsuga heterophylla* are commonly dominant canopy species in western Montana and northern Idaho occurrences, in lower montane riparian zones. Shrub understory components include *Cornus sericea*, *Acer glabrum*, *Alnus incana*, *Betula papyrifera*, *Oplopanax horridus*, and *Symphoricarpos albus*. Ferns and forbs of mesic sites are commonly present in many occurrences, including such species as *Athyrium filix-femina*, *Gymnocarpium dryopteris*, and *Senecio triangularis* (NatureServe 2012).

Rocky Mountain Subalpine-Montane Riparian Shrubland

This system is found throughout the Rocky Mountain cordillera from New Mexico north into Montana and northwestern Alberta and also occurs in mountainous areas of the Intermountain West region and Colorado Plateau. These are montane to subalpine riparian shrublands occurring as narrow bands of shrubs lining streambanks and alluvial terraces in narrow-to-wide, low-gradient valley bottoms and floodplains with sinuous stream channels. Generally, the system is found at higher elevations, but can be found anywhere from 4,920 to 11,400 feet (1,500 to 3,475 meters), and may occur at even lower elevations in the Canadian Rockies. Occurrences also can be found around seeps, fens, and isolated springs on hillslopes away from valley bottoms. Many of the plant associations found in this system are associated with beaver activity. This system often occurs as a mosaic of multiple communities that are shrub- and herb-dominated and includes above-treeline, willow-dominated, snowmelt-fed basins that feed into streams. The dominant shrubs reflect the large elevational gradient and include *Alnus incana, Betula glandulosa, Betula occidentalis, Cornus sericea, Salix bebbiana, Salix boothii, Salix brachycarpa, Salix drummondiana, Salix eriocephala, Salix geyeriana, Salix monticola, Salix planifolia*, and *Salix wolfii*. Generally, the upland vegetation surrounding these riparian systems are of either conifer or aspen forests (NatureServe 2012).

Rocky Mountain Subalpine-Montane Riparian Woodland

This riparian woodland system is composed of seasonally flooded forests and woodlands found at montane to subalpine elevations of the Rocky Mountain cordillera, from southern New Mexico north into Montana, and west into the Intermountain region and the Colorado Plateau. It occurs throughout the interior of British Columbia and the eastern slopes of the Cascade Mountains. This system contains the conifer and aspen woodlands that line montane streams. These are communities tolerant of periodic flooding and high water tables. Snowmelt moisture in this system may create shallow water tables or seeps for a portion of the growing season. Stands typically occur at elevations between 4,920 and 10,830 feet (1,500 and 3,300 meters), farther north elevation ranges between 2,950 and 6,560 feet (900 and 2,000 meters). This is confined to specific riparian environments occurring on floodplains or terraces of rivers and streams, in V-shaped, narrow valleys and canyons (where there is cold-air drainage). Less frequently, occurrences are found in moderate-wide valley bottoms on large floodplains along broad, meandering rivers, and on pond or lake margins. Dominant tree species vary across the latitudinal range, although it usually includes *Abies lasiocarpa* and/or *Picea engelmannii*; other important species include *Pseudotsuga menziesii, Picea pungens, Picea engelmannii X glauca, Populus tremuloides*, and *Juniperus scopulorum*. Other trees possibly present but not usually dominant include *Alnus incana, Abies concolor, Abies grandis, Pinus contorta, Populus angustifolia, Populus balsamifera* ssp. *trichocarpa*, and *Juniperus osteosperma* (NatureServe 2012).

Western Great Plains Floodplain

This ecological system is found in the floodplains of medium and large rivers of the western Great Plains. It occurs on the lower reaches of the North and South Platte, Platte, Arkansas, and Canadian rivers. Alluvial soils and periodic, intermediate flooding (every 5 to 25 years) typify this system. These are the perennial big rivers of the region with hydrologic dynamics largely driven by snowmelt in the mountains, instead of local precipitation events. Dominant communities in this system range from floodplain forests to wet meadows to gravel/sand flats; however, they are linked by underlying soils and the flooding regime. Dominant species include *Populus deltoides* and *Salix* spp. Grass cover underneath the trees is an important part of this system and is a mix of tallgrass species, including *Panicum virgatum* and *Andropogon gerardii*. Sometimes, *Tamarix* spp. and less desirable or exotic grasses and forbs can invade degraded areas in the floodplains, especially in the western portion of the province. These areas often are subjected to heavy grazing and/or agriculture and can be heavily degraded. Groundwater depletion and lack of fire have created additional alterations in species composition. In most cases, the majority of the

wet meadow and prairie communities may be extremely degraded or extirpated from examples of this system (NatureServe 2012).

Western Great Plains Riparian Woodland and Shrubland

These are the stream and creekside woodlands and shrublands found in the western Great Plains. They usually occur in shortgrass prairie or other types of grasslands. They occur in draws and along small rivers in deep cut ravines to wider meandering streambeds. Flows in these streams can be flashy, and may dry down completely for some portion of the year. Dominant species vary with the size of the stream and valley type. Plains cottonwood, willows, and silver sagebrush are the most common with an herbaceous understory composed of grasses including little bluestem, western wheatgrass, and sand dropseed. Heavy use such as frequent livestock grazing or heavy agricultural runoff can increase stream salinity resulting in nonnative trees such as tamarisk and Russian olive replacing native species. See also a similar system that occurs along larger rivers, for example the South Platte, called the Western Great Plains Floodplain System (University of Idaho 2012).

National Wetlands Inventory

Refer to Section J.1.16 for the discussion about the NWI.

J.1.14 Shrub/Shrub Steppe

Colorado Plateau Blackbrush-Mormon-tea Shrubland

This ecological system occurs in the Colorado Plateau on benchlands, colluvial slopes, pediments or bajadas. Elevation ranges from 1,835 to 5,410 feet (560 to 1,650 meters). Substrates are shallow, typically calcareous, non-saline and gravelly or sandy soils over sandstone or limestone bedrock, caliche, or limestone alluvium. It also occurs in deeper soils on sandy plains where it may have invaded desert grasslands. The vegetation is characterized by extensive open shrublands dominated by *Coleogyne ramosissima* often with *Ephedra viridis, Ephedra torreyana*, or *Grayia spinosa*. Sandy portions may include *Artemisia filifolia* as codominant. The herbaceous layer is sparse and composed of graminoids such as *Achnatherum hymenoides, Pleuraphis jamesii*, or *Sporobolus cryptandrus* (NatureServe 2012).

Colorado Plateau Mixed Low Sagebrush Shrubland

This ecological system occurs in the Colorado Plateau, Tavaputs Plateau, and Uinta Basin in canyons, gravelly draws, hilltops, and dry flats at elevations generally below 5,900 feet (1,800 meters). Soils are often rocky, shallow, and alkaline. This type extends across northern New Mexico into the southern Great Plains on limestone hills. It includes open shrublands and steppe dominated by *Artemisia nova* or *Artemisia bigelovii* sometimes with *Artemisia tridentata* ssp. *wyomingensis* codominant. Semi-arid grasses such as *Achnatherum hymenoides, Aristida purpurea, Bouteloua gracilis, Hesperostipa comata, Pleuraphis jamesii*, or *Poa fendleriana* often are present and may form a graminoid layer with more than 25 percent cover (NatureServe 2012).

Great Basin Xeric Mixed Sagebrush Shrubland

This ecological system occurs in the Great Basin on dry flats and plains, alluvial fans, rolling hills, rocky hillslopes, saddles, and ridges at elevations between 3,280 and 8,525 feet (1,000 and 2,600 meters). Sites are dry, often exposed to desiccating winds, with typically shallow, rocky, non-saline soils. Shrublands are dominated by *Artemisia nova* (mid and low elevations), *Artemisia arbuscula* ssp. *longicaulis*, or *Artemisia arbuscula* ssp. *longiloba* (higher elevation) and may be codominated by *Artemisia tridentata* ssp. *wyomingensis* or *Chrysothamnus viscidiflorus*. Other shrubs that may be present include *Atriplex*

confertifolia, Ephedra spp., *Ericameria* spp., *Grayia spinosa, Lycium shockleyi, Picrothamnus desertorum, Sarcobatus vermiculatus*, and *Tetradymia* spp. The herbaceous layer is likely sparse and composed of perennial bunch grasses, such as *Achnatherum hymenoides, Achnatherum speciosum, Achnatherum thurberianum, Elymus elymoides*, or *Poa secunda* (NatureServe 2012).

Inter-Mountain Basins Greasewood Flat

This ecological system occurs throughout much of the western United States in Intermountain basins and extends onto the western Great Plains and into central Montana. It typically occurs near drainages on stream terraces and flats or may form rings around more sparsely vegetated playas. Sites typically have saline soils, a shallow water table, and flood intermittently, but remain dry for most growing seasons. The water table remains high enough to maintain vegetation, despite salt accumulations. This system usually occurs as a mosaic of multiple communities with open to moderately dense shrublands dominated or codominated by *Sarcobatus vermiculatus*. Other shrubs that may be present to codominant in some occurrences include *Atriplex canescens, Atriplex confertifolia, Atriplex gardneri, Artemisia tridentata* ssp. *wyomingensis, Artemisia tridentata* ssp. *tridentata, Artemisia cana* ssp. *cana*, or *Krascheninnikovia lanata*. Occurrences often are surrounded by mixed salt desert scrub or big sagebrush shrublands. The herbaceous layer, if present, is usually dominated by graminoids. There may be inclusions of *Sporobolus airoides, Pascopyrum smithii, Distichlis spicata* (where water remains ponded the longest), *Calamovilfa longifolia, Poa pratensis, Puccinellia nuttalliana*, or *Eleocharis palustris* herbaceous types (NatureServe 2012).

Inter-Mountain Basins Mat Saltbush Shrubland

This ecological system occurs on gentle slopes and rolling plains in the northern Colorado Plateau and Uinta Basin on Mancos shale and arid, windswept basins and plains across parts of Wyoming. It is also found in eastern Wyoming in the Great Plains areas and may extend north into Montana and Canada. Substrates are shallow, typically saline, alkaline, fine-textured soils developed from shale or alluvium and may be associated with shale badlands. Infiltration rate is typically low. These landscapes typically support dwarf-shrublands composed of relatively pure stands of *Atriplex* spp., such as *Atriplex corrugata* (in Colorado and Utah) or *Atriplex gardneri* (Wyoming and Montana into Canada). Other dominant or codominant dwarf-shrubs may include *Artemisia longifolia, Artemisia pedatifida* (very important in Wyoming, rare in Colorado stands), or *Picrothamnus desertorum*, sometimes with a mix of other low shrubs, such as *Krascheninnikovia lanata* or *Tetradymia spinosa*. *Atriplex confertifolia* or *Atriplex canescens* may be present but do not codominate. *Artemisia tridentata* ssp. *wyomingensis* can occur in patches in this system.

The herbaceous layer is typically sparse. Scattered perennial forbs occur, such as *Xylorhiza glabriuscula* and *Sphaeralcea grossulariifolia*; perennial grasses *Achnatherum hymenoides, Bouteloua gracilis* (not in Wyoming), *Elymus elymoides, Elymus lanceolatus* ssp. *lanceolatus, Pascopyrum smithii, Poa secunda*, or *Sporobolus airoides* may dominate the herbaceous layer. In less saline areas, there may be inclusions of grasslands dominated by *Hesperostipa comata, Leymus salinus, Pascopyrum smithii*, or *Pseudoroegneria spicata*. In Wyoming and possibly elsewhere, inclusions of non-saline, gravelly barrens or rock outcrops dominated by cushion plants such as *Arenaria hookeri* and *Phlox hoodii* without dwarf-shrubs may be present (these are not restricted to this system). Annuals are seasonally present and may include *Eriogonum inflatum, Plantago tweedyi, Monolepis nuttalliana*, and the introduced annual grass *Bromus tectorum*. In Montana, *Atriplex gardneri* also occurs associated with badlands and determining which system it falls into may be difficult (NatureServe 2012).

Inter-Mountain Basins Mixed Salt Desert Scrub

This extensive ecological system includes open-canopied shrublands of typically saline basins, alluvial slopes, and plains across the Intermountain western United States. This type also extends in limited distribution into the southern Great Plains. Substrates are often saline and calcareous, medium- to fine-textured, alkaline soils, but include some coarser-textured soils. The vegetation is characterized by a typically open to moderately dense shrubland composed of one or more *Atriplex* species, such as *Atriplex confertifolia, Atriplex canescens, Atriplex polycarpa*, or *Atriplex spinifera*. *Grayia spinosa* tends to occur on coppice dunes that may have a silty component to them. Northern occurrences lack *Atriplex* species and typically are dominated by *Grayia spinosa, Krascheninnikovia lanata*, and/or *Artemisia tridentata*. Other shrubs present to codominant may include *Artemisia tridentata* ssp. *wyomingensis, Chrysothamnus viscidiflorus, Ericameria nauseosa, Ephedra nevadensis, Grayia spinosa, Krascheninnikovia lanata, Lycium* spp., *Picrothamnus desertorum*, or *Tetradymia* spp. In Wyoming, occurrences are typically a mix of *Atriplex confertifolia, Grayia spinosa, Artemisia tridentata* ssp. *wyomingensis, Sarcobatus vermiculatus, Krascheninnikovia lanata*, and various *Ericameria* or *Chrysothamnus* species. Some places are a mix of *Atriplex confertifolia* and *Artemisia tridentata* ssp. *wyomingensis*. In the Great Basin, *Sarcobatus vermiculatus* is generally absent but, if present, does not codominate. The herbaceous layer varies from sparse to moderately dense and is dominated by perennial graminoids such as *Achnatherum hymenoides, Bouteloua gracilis, Elymus lanceolatus* ssp. *lanceolatus, Pascopyrum smithii, Pleuraphis jamesii, Pleuraphis rigida, Poa secunda*, or *Sporobolus airoides*. Various forbs also are present (NatureServe 2012).

Inter-Mountain Basins Semi-Desert Shrub-Steppe

This ecological system occurs throughout the Intermountain western United States, typically at lower elevations on alluvial fans and flats with moderate to deep soils, and extends into south-central Montana between the Pryor and Beartooth ranges where a distinct rainshadow effect occurs. This semi-arid shrub-steppe is typically dominated by graminoids (greater than 25 percent cover) with an open shrub to moderately dense woody layer with a typically strong graminoid layer. The most widespread (but not dominant) species is *Pseudoroegneria spicata*, which occurs from the Columbia Basin to the northern Rockies. Characteristic grasses include *Achnatherum hymenoides, Bouteloua gracilis, Distichlis spicata, Poa secunda, Poa fendleriana, Sporobolus airoides, Hesperostipa comata, Pleuraphis jamesii*, and *Leymus salinus*. The woody layer is often a mixture of shrubs and dwarf-shrubs, although it may be dominated by a single species. Characteristic species include *Atriplex canescens, Artemisia tridentata, Chrysothamnus greenei, Chrysothamnus viscidiflorus, Ephedra* spp., *Ericameria nauseosa, Gutierrezia sarothrae*, and *Krascheninnikovia lanata*. *Artemisia tridentata* or *Atriplex canescens* may be present but does not dominate. Annual grasses, especially the exotics *Bromus japonicus* and *Bromus tectorum*, may be present to abundant. Forbs are generally of low importance and are highly variable across the range but may be diverse in some occurrences. The general aspect of occurrences may be either open shrubland with patchy grasses or patchy open herbaceous layers. Disturbance may be important in maintaining the woody component. Microphytic crust is very important in some stands (NatureServe 2012).

Southern Colorado Plateau Sand Shrubland

This large-patch ecological system is found on the south-central Colorado Plateau in northeastern Arizona extending into southern and central Utah. It occurs on windswept mesas, broad basins, and plains at low to moderate elevations (4,260 to 5,900 feet [1,300 to 1,800 meters]). Substrates are stabilized sandsheets or shallow to moderately deep sandy soils that may form small hummocks or small coppice dunes. This semi-arid, open shrubland is typically dominated by short shrubs (10 to 30 percent cover) with a sparse graminoid layer. The woody layer is often a mixture of shrubs and dwarf-shrubs. Characteristic species include *Ephedra cutleri, Ephedra torreyana, Ephedra viridis*, and *Artemisia filifolia*. *Coleogyne ramosissima* is typically not present. *Poliomintha incana, Parryella filifolia, Quercus havardii* var.

tuckeri, or *Ericameria nauseosa* may be present to dominant locally. *Ephedra cutleri* and *Ephedra viridis* often assume a distinctive matty growth form. Characteristic grasses include *Achnatherum hymenoides, Bouteloua gracilis, Hesperostipa comata*, and *Pleuraphis jamesii*. The general aspect of occurrences is an open low shrubland but may include small blowouts and dunes. Occasionally grasses may be moderately abundant locally and form a distinct layer. Disturbance may be important in maintaining the woody component. Eolian processes are evident, such as pediceled plants, occasional blowouts or small dunes, but the generally higher vegetative cover and less prominent geomorphic features distinguish this system from Inter-Mountain Basins Active and Stabilized Dune (NatureServe 2012).

Wyoming Basins Dwarf Sagebrush Shrubland and Steppe

This windswept ecological system is composed of dwarf sagebrush shrubland and shrub-steppe that forms matrix vegetation and large patches on the margins of high-elevation basins in central and southern Wyoming. Typical sites are gently rolling hills and long, gently sloping pediments and fans. These sites are very windy and have shallow, often rocky soils. The distinguishing feature of this system is a short-shrub stratum in which dwarf-shrubs (less than 12 inches [30 centimeters] tall) contribute at least two-thirds of the woody canopy. Four sagebrush taxa may dominate the shrub stratum: *Artemisia tripartita* ssp. *rupicola, Artemisia nova, Artemisia arbuscula* ssp. *longiloba*, and wind-dwarfed *Artemisia tridentata* ssp. *wyomingensis*. Two or more of these sagebrushes often codominate, but any of them may occur alone. Where graminoids are common and tall, the vegetation often has the appearance of grassland without shrubs; the shrubs are obvious only when the vegetation is viewed from up close. Where graminoids contribute less cover, the vegetation is a compact shrubland. The herbaceous component of the vegetation includes both rhizomatous and bunch-form graminoids, cushion plants, and other low-growing forbs. *Bouteloua gracilis*, a common species of Inter-Mountain Basins Big Sagebrush Steppe in Wyoming, is absent (NatureServe 2012).

J.1.15 Water

Open Water (Fresh)

This ecological system includes all areas of open water with generally less than 25 percent cover of vegetation or soil, specifically inland waters of streams, rivers, ponds, and lakes (University of Idaho 2012).

J.1.16 Wetlands

Great Plains Prairie Pothole

The prairie pothole system is found primarily in the glaciated northern Great Plains of the United States and Canada, and is dominated by depressional wetlands formed by glaciers scraping the landscape during the Pleistocene era. This system is typified by several classes of wetlands distinguished by changes in topography, soils, and hydrology. Many of the basins in this system are closed basins and receive irregular inputs of water from their surroundings (groundwater and precipitation) and export water as groundwater. Hydrology of the potholes is complex. Precipitation and runoff from snowmelt are often the principal water sources with groundwater inflow secondary. Evapotranspiration is the major water loss with seepage loss secondary. Most of the wetlands and lakes contain water that is alkaline (pH greater than 7.4). The concentration of dissolved solids results in water that ranges from fresh to extremely saline. The flora and vegetation of this system are a function of the topography, water regime, and salinity. In addition, because of periodic droughts and wet periods, many wetlands in this system may undergo vegetation cycles. This system includes elements of emergent marshes and wet sedge meadows that develop into a pattern of concentric rings. This system is responsible for a significant percentage of the annual production of many economically important waterfowl in North America and houses more than 50

percent of North American's migratory waterfowl with several species reliant on this system for breeding and feeding. Much of the original extent of this system has been converted to agriculture, and only approximately 40 to 50 percent of the system remains undrained (NatureServe 2012).

Inter-Mountain Basins Interdunal Swale Wetland

This ecological system occurs in dune fields in the Intermountain western United States as small (usually less than 0.1 hectare) interdunal wetlands that occur in wind deflation areas, where sands are scoured down to the water table. Small ponds may be associated. The water table may be perched over an impermeable layer of caliche or clay or, in the case of the Great Sand Dunes of Colorado, a geologic dike that creates a closed basin that traps water. These wetland areas typically are dominated by common emergent herbaceous vegetation such as species of *Eleocharis*, *Juncus*, and *Schoenoplectus*. Dune field ecological processes distinguish these emergent wetlands from similar non-dune wetlands (NatureServe 2012).

North American Arid West Emergent Marsh

This widespread ecological system occurs throughout much of the arid and semi-arid regions of western North America, typically surrounded by savanna, shrub-steppe, steppe, or desert vegetation. Natural marshes may occur in depressions in the landscape (ponds, kettle ponds), as fringes around lakes, and along slow-flowing streams and rivers (such riparian marshes also are referred to as sloughs). Marshes are frequently or continually inundated, with water depths up to 6.5 feet (2 meters). Water levels may be stable, or may fluctuate 3.3 feet (1 meter) or more over the course of the growing season. Water chemistry may include some alkaline or semi-alkaline situations, but the alkalinity is highly variable even in the same complex of wetlands. Marshes have distinctive soils that are typically mineral, but also can accumulate organic material. Soils have characteristics that result from long periods of anaerobic conditions in the soils (e.g., gleyed soils, high organic content, redoximorphic features). The vegetation is characterized by herbaceous plants that are adapted to saturated soil conditions. Common emergent and floating vegetation includes species of *Scirpus* and/or *Schoenoplectus*, *Typha*, *Juncus*, *Potamogeton*, *Polygonum*, *Nuphar*, and *Phalaris*. This system also may include areas of relatively deep water with floating-leaved plants (*Lemna*, *Potamogeton*, and *Brasenia*) and submerged and floating plants (*Myriophyllum*, *Ceratophyllum*, and *Elodea*) (NatureServe 2012).

Rocky Mountain Subalpine-Montane Fen

This system occurs infrequently throughout the Rocky Mountains from Colorado north into Canada. It is confined to specific environments defined by groundwater discharge, soil chemistry, and peat accumulation of at least 15.75 inches (40 centimeters). This system includes extreme rich fens and iron fens, both being quite rare. Fens form at low points in the landscape or near slopes where groundwater intercepts the soil surface. Groundwater inflows maintain a fairly constant water level year-round with water at or near the surface most of the time. Constant high water levels lead to accumulation of organic material. In addition to peat accumulation and perennially saturated soils, the extreme rich and iron fens have distinct soil and water chemistry with high levels of one or more minerals such as calcium, magnesium, or iron. These fens usually occur as a mosaic of several plant associations dominated by *Carex aquatilis*, *Carex limosa*, *Carex lasiocarpa*, *Betula glandulosa*, *Kobresia myosuroides*, *Kobresia simpliciuscula*, and *Trichophorum pumilum (= Scirpus pumilus)*. *Sphagnum* spp. (peatmoss) is indicative of iron fens. The surrounding landscape may be ringed with other wetland systems (e.g., riparian shrublands) or a variety of upland systems from grasslands to forests (NatureServe 2012).

Western Great Plains Closed Depression Wetland

Communities associated with the playa lakes in the southern areas of this province and the rainwater basins in Nebraska characterize this system. They are primarily upland depressional basins. This hydric system is typified by the presence of an impermeable layer such as a dense clay, hydric soil and is usually recharged by rainwater and nearby runoff. They are rarely linked to outside groundwater sources and do not have an extensive watershed. Ponds and lakes associated with this system can experience periodic drawdowns during drier seasons and years and often are replenished by spring rains. *Eleocharis* spp., *Hordeum jubatum*, along with common forbs such as *Coreopsis tinctoria, Symphyotrichum subulatum (= Aster subulatus)*, and *Polygonum pensylvanicum (= Polygonum bicorne)* are common vegetation in the wetter and deeper depression, while *Pascopyrum smithii* and *Buchloe dactyloides* are more common in shallow depressions in rangeland. Species richness can vary considerably among individual examples of this system and is especially influenced by adjacent land use, which is often agriculture, and may provide nutrient and herbicide runoff. Dynamic processes that affect these depressions are hydrological changes, grazing, and conversion to agricultural use (NatureServe 2012).

Western Great Plains Open Freshwater Depression Wetland

This Great Plains emergent marsh ecological system is composed of lowland depressions; it also occurs along lake borders that have more open basins and a permanent water source through most of the year, except during exceptional drought years. These areas are distinct from Western Great Plains Closed Depression Wetland by having a large watershed and/or significant connection to the groundwater table. A variety of species are part of this system, including emergent species of *Typha, Carex, Eleocharis, Juncus, Spartina*, and *Schoenoplectus*, as well as floating genera such as *Potamogeton, Sagittaria, Stuckenia*, or *Ceratophyllum*. The system includes submergent and emergent marshes and associated wet meadows and wet prairies. These types also can drift into stream margins that are more permanently wet and linked directly to the basin via groundwater flow from/into the pond or lake. Some of the specific communities will also be found in the floodplain system and should not be considered a separate system in that case. These types should also not be considered a separate system if they are occurring in lowland areas of the prairie matrix only because of an exceptionally wet year (NatureServe 2012).

Western Great Plains Saline Depression Wetland

This ecological system is very similar to Western Great Plains Open Freshwater Depression Wetland and Western Great Plains Closed Depression Wetland. However, strongly saline soils cause both the shallow lakes and depressions and the surrounding areas to be more brackish. Salt encrustations can occur on the surface in some examples of this system, and the soils are severely affected and have poor structure. Species that typify this system are salt-tolerant and halophytic species such as *Distichlis spicata, Sporobolus airoides*, and *Hordeum jubatum*. Other commonly occurring taxa include *Puccinellia nuttalliana, Salicornia rubra, Schoenoplectus maritimus, Schoenoplectus americanus, Suaeda calceoliformis, Spartina* spp., *Triglochin maritima*, and shrubs such as *Sarcobatus vermiculatus* and *Krascheninnikovia lanata*. During exceptionally wet years, an increase in precipitation can dilute the salt concentration in the soils of some examples of this system that may allow for less salt-tolerant species to occur. Communities found in this system also may occur in floodplains (i.e., more open depressions) but probably should not be considered a separate system unless they transition to areas outside the immediate floodplain (NatureServe 2012).

National Wetlands Inventory

The NWI data for Wyoming, Colorado, and Utah were downloaded from the FWS in January 2012. These data were incorporated into the dataset downloaded from the GAP to provide a more comprehensive inventory of wetland and riparian habitats in the Project area. NWI data coincided with

GAP data when the data sets were merged. NWI data are reported in areas where GAP data reported upland land cover categories and NWI reported wetland or riparian cover types. GAP data are reported in areas where both NWI and GAP reported wetland or riparian land cover types, or where GAP reported wetland or riparian cover types and NWI reported upland vegetation.

J.2 Noxious Weeds in the Project Area

Tables J-2 through J-4 present lists of designated noxious weeds in the three states crossed by the Project. Tables J-2, J-4, and J-5 also contain information on noxious weed occurrences in BLM field offices and national forests crossed by the Project, where available.

TABLE J-2
STATE- AND COUNTY-LISTED NOXIOUS WEEDS IN WYOMING FOR LANDS IN THE PROJECT AREA

Common Name[1]	Scientific Name	State-listed	Rawlins Field Office Occurrence[2]
Canada thistle	*Cirsium arvense*	✓	✓
Common burdock	*Arctium minus*	✓	✓
Common St. Johnswort	*Hypericum perforatum*	✓	UK
Common tansy	*Tanacetum vulgare*	✓	–
Dalmatian toadflax	*Linaria dalmatica*	✓	✓
Diffuse knapweed	*Centaurea diffusa*	✓	✓
Dyer's woad	*Isatis tinctoria*	✓	✓
Field bindweed	*Convolvulus arvensis*	✓	✓
Hoary cress	*Cardaria draba*	✓	✓
Houndstongue	*Cynoglossum officinale*	✓	✓
Leafy spurge	*Euphorbia esula*	✓	✓
Musk thistle	*Carduus nutans*	✓	✓
Oxeye daisy	*Chrysanthemum leucanthemum*	✓	✓
Perennial pepperweed	*Lepidium latifolium*	✓	✓
Perennial sowthistle	*Sonchus arvensis*	✓	–
Plumeless thistle	*Carduus acanthoides*	✓	✓
Purple loosestrife	*Lythrum salicaria*	✓	UK
Quackgrass	*Elytrigia repens*	✓	–
Russian knapweed	*Acroptilon repens*	✓	✓
Russian olive	*Elaeagnus angustifolia*	✓	–
Salt cedar	*Tamarix chinensis, T. parviflora, and T. ramosissima*	✓	✓
Scotch thistle	*Onopordum acanthium*	✓	✓
Skeletonleaf bursage	*Ambrosia tomentosa*	✓	UK
Spotted knapweed	*Centaurea maculosa*	✓	✓
Yellow toadflax	*Linaria vulgaris*	✓	✓

SOURCES:
[1]Nomenclature follows Wyoming Weed and Pest Council 2012
[2]Bureau of Land Management 2008a
NOTES:
✓ = Indicates status as a state-listed noxious weed species or the presence of a state-listed species in a field office
UK = No populations of the species currently known in a field office
– = Field office has not surveyed for the species or the species was not mentioned in the corresponding management document

TABLE J-3 DESIGNATED NOXIOUS WEEDS IN THE STATE OF COLORADO			
Common Name	**Scientific Name**	**Common Name**	**Scientific Name**
Absinth wormwood	*Artemisia absinthium*	Jointed goatgrass[1]	*Aegilops cylindrica*
African rue	*Peganum harmala*	Leafy spurge[1]	*Euphorbia esula*
Black henbane[1]	*Hyoscyamus niger*	Mayweed chamomile	*Anthemis cotula*
Bohemian knotweed	*Polygonum x bohemicum*	Meadow knapweed	*Centaurea pratensis*
Bouncingbet	*Saponaria officinalis*	Mediterranean sage	*Salvia aethiopis*
Bulbous bluegrass	*Poa bulbosa*	Medusahead	*Taeniatherum caput-medusae*
Bull thistle[1]	*Cirsium vulgare*	Moth mullein	*Verbascum blattaria*
Camelthorn	*Alhagi pseudalhagi*	Musk thistle[1]	*Carduus nutans*
Canada thistle[1]	*Cirsium arvense*	Myrtle spurge	*Euphorbia myrsinites*
Cheatgrass/Downy brome	*Bromus tectorum*	Orange hawkweed	*Hieracium aurantiacum*
Chicory[1]	*Cichorium intybus*	Oxeye daisy[1]	*Chrysanthemum leucanthemum*
Chinese clematis	*Clematis orientalis*	Perennial pepperweed[1]	*Lepidium latifolium*
Common burdock[1]	*Arctium minus*	Perennial sowthistle	*Sonchus arvensis*
Common crupina	*Crupina vulgaris*	Plumeless thistle	*Carduus acanthoides*
Common mullein	*Verbascum thapsus*	Poison hemlock	*Conium maculatum*
Common St. Johnswort	*Hypericum perforatum*	Puncturevine	*Tribulus terrestris*
Common tansy	*Tanacetum vulgare*	Purple loosestrife[1]	*Lythrum salicaria*
Common teasel	*Dipsacus fullonum*	Quackgrass	*Elytrigia repens*
Corn chamomile	*Anthemis arvensis*	Redstem filaree	*Erodium cicutarium*
Cutleaf teasel	*Dipsacus laciniatus*	Rush skeletonweed	*Chondrilla juncea*
Cypress spurge	*Euphorbia cyparissias*	Russian knapweed[1]	*Acroptilon repens*
Dalmatian toadflax- broad leaved[1]	*Linaria dalmatica*	Russian-olive	*Elaeagnus angustifolia*
Dalmatian toadflax- narrow leaved	*Linaria genistifolia*	Salt cedar[1]	*Tamarix chinensis, T. parviflora, and T. ramosissima*
Dame's rocket	*Hesperis matronalis*	Scentless chamomile	*Matricaria perforata*
Diffuse knapweed[1]	*Centaurea diffusa*	Scotch thistle[1]	*Onopordum acanthium*
Dyer's woad	*Isatis tinctoria*	Spotted knapweed[1]	*Centaurea maculosa*
Elongated mustard	*Brassica elongata*	Spurred anoda	*Anoda cristata*
Eurasian watermilfoil	*Myriophyllum spicatum*	Squarrose knapweed	*Centaurea virgata*
Field bindweed	*Convolvulus arvensis*	Sulfur cinquefoil	*Potentilla recta*
Giant knotweed	*Polygonum sachalinense*	Tansy ragwort	*Senecio jacobaea*
Giant reed	*Arundo donax*	Velvetleaf	*Abutilon theophrasti*
Giant salvinia	*Salvinia molesta*	Venice mallow	*Hibiscus trionum*
Halogeton	*Halogeton glomeratus*	Wild caraway	*Carum carvi*
Hoary cress[1]	*Cardaria draba*	Wild proso millet	*Panicum miliaceum*
Houndstongue[1]	*Cynoglossum officinale*	Yellow nutsedge	*Cyperus esculentus*
Hydrilla	*Hydrilla verticillata*	Yellow starthistle[1]	*Centaurea solstitialis*
Japanese knotweed	*Polygonum cuspidatum*	Yellow toadflax	*Linaria vulgaris*
Johnsongrass	*Sorghum halepense*		

SOURCE: Nomenclature follows Colorado Department of Agriculture 2012
NOTE:[1]Indicates a species known to occur in the Bureau of Land Management Grand Junction Field Office (Bureau of Land Management 2012a)

TABLE J-4
STATE- AND COUNTY-LISTED NOXIOUS WEEDS IN UTAH FOR BUREAU OF LAND MANAGEMENT LANDS IN THE PROJECT AREA

Common Name[1]	Scientific Name	Vernal Field Office Occurrence[2]	Moab Field Office Occurrence[3]	Price Field Office Occurrence[4]	Richfield Field Office Occurrence[5]	Fillmore Field Office Occurrence[6]	Salt Lake Field Office Occurrence[7]
Utah State-Listed Class A Weeds (Early Detection Rapid response)							
Black henbane	*Hyoscyamus niger*	✓	✓	✓	UK	–	–
Diffuse knapweed	*Centaurea diffusa*	✓	✓	–	✓	✓	✓
Johnsongrass	*Sorghum halepense*	UK	✓	–	✓	–	✓
Leafy spurge	*Euphorbia esula*	✓	–	–	UK	–	✓
Medusahead	*Taeniatherum caput-medusae*	UK	–	–	UK	–	–
Oxeye daisy	*Chrysanthemum leucanthemum*	–	–	–	–	–	–
Purple loosestrife	*Lythrum salicaria*	✓	✓	✓	UK	✓	✓
Spotted knapweed	*Centaurea maculosa*	✓	✓	✓	UK	✓	✓
Squarrose knapweed	*Centaurea virgata*	UK	✓	–	X	✓	✓
St. Johnswort	*Hypericum perforatum*	–	–	–	UK	–	–
Sulfur cinquefoil	*Potentilla recta*	–	–	–	–	–	–
Yellow starthistle	*Centaurea solstitialis*	UK	–	–	UK	–	✓
Yellow toadflax	*Linaria vulgaris*	✓	✓	–	UK	–	–
Utah State-Listed Class B Weeds (Control)							
Bermudagrass	*Cynodon dactylon*	UK	✓	–	UK	–	✓
Dalmatian toadflax	*Linaria dalmatica*	UK	✓	-	UK	–	–
Dyer's woad	*Isatis tinctoria*	✓	✓	–	UK	✓	✓
Hoary cress	*Cardaria draba*	✓	✓	✓	✓	✓	✓
Musk thistle	*Carduus nutans*	✓	✓	✓	✓	✓	✓
Poison hemlock	*Conium maculatum*	UK	✓	–	–	–	–
Perennial pepperweed	*Lepidium latifolium*	✓	✓	✓	✓	–	✓
Russian knapweed	*Acroptilon repens*	✓	✓	✓	✓	–	✓
Scotch thistle	*Onopordum acanthium*	✓	✓	✓	✓	–	✓
Utah State-Listed Class C Weeds (Containment)							
Canada thistle	*Cirsium arvense*	✓	✓	✓	✓	✓	✓
Field bindweed	*Convolvulus arvensis*	✓	✓	✓	✓	✓	✓
Houndstongue	*Cynoglossum officinale*	✓	✓	✓	–	–	–

TABLE J-4
STATE- AND COUNTY-LISTED NOXIOUS WEEDS IN UTAH FOR BUREAU OF LAND MANAGEMENT LANDS IN THE PROJECT AREA

Common Name[1]	Scientific Name	Vernal Field Office Occurrence[2]	Moab Field Office Occurrence[3]	Price Field Office Occurrence[4]	Richfield Field Office Occurrence[5]	Fillmore Field Office Occurrence[6]	Salt Lake Field Office Occurrence[7]
Salt cedar	*Tamarix chinensis, T. parviflora, and T. ramosissima*	✓	✓	✓	✓	–	–
Quackgrass	*Elytrigia repens*	✓	✓	–	✓	✓	✓
County-listed Weeds							
Blue flowering lettuce (Juab County)	*Lactuca tatarica*	–	–	–	–	✓	–
Common teasel (Uintah County)	*Dipsacus fullonum*	–	–	–	–	–	–
Common reed (Washington County)	*Phragmites australis*	–	✓	–	–	–	–
Puncturevine (Uintah County)	*Tribulus terrestris*	–	–	–	–	–	–
Russian-olive (Carbon, Duchesne, Grand, and Uintah counties)	*Elaeagnus angustifolia*	✓	✓	✓	UK	–	–
Water hemlock (Duchesne County)	*Cicuta maculata*	–	–	–	–	–	–

SOURCES:
[1]Nomenclature follows Utah Department of Agriculture and Food 2009, 2010.
[2]Bureau of Land Management (BLM) 2008b
[3]BLM 2008c
[4]BLM 2008d
[5]BLM 2008e
[6]No inventories of noxious weeds have occurred in the particular BLM lands that would be crossed by the Project in this field office. Information for the BLM Fillmore Field Office was acquired from the U.S. Department of Agriculture PLANTS database using a query of Utah state-listed noxious weeds that occur in Juab County, Utah (Natural Resource Conservation Service [NRCS] 2013a) For Juab County-listed noxious weeds, the presence of blue flowering lettuce was confirmed by the BLM Fillmore Field Office (Probert 2013).
[7]No inventories of noxious weeds have occurred in the particular BLM lands that would be crossed by the Project in this field office. Information for the BLM Salt Lake Field Office was acquired from the U.S. Department of Agriculture PLANTS database using a query of Utah state-listed noxious weeds that occur in Utah County, Utah (NRCS 2013b), as the only BLM-administered public lands potentially crossed by Project alternative routes in the Salt Lake Field Office occur in this county (Watson 2013).
NOTES:
✓ = Indicates status as a state-listed noxious weed species or the presence of a state- or county-listed species in a field office.
UK = No populations of the species are currently known within the field office.
– = Field office has not surveyed for the species or the species was not mentioned in the corresponding management document

TABLE J-5
STATE- AND COUNTY-LISTED NOXIOUS WEEDS IN UTAH FOR U.S. FOREST SERVICE LANDS IN THE PROJECT AREA

Common Name[1]	Scientific Name	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest
Utah State-Listed Class A Weeds (Early Detection Rapid response)				
Black henbane	*Hyoscyamus niger*	✓		
Diffuse knapweed	*Centaurea diffusa*		✓	✓
Johnsongrass	*Sorghum halepense*			✓
Leafy spurge	*Euphorbia esula*	✓		✓
Medusahead	*Taeniatherum caput-medusae*			
Oxeye daisy	*Chrysanthemum leucanthemum*	✓		✓
Purple loosestrife	*Lythrum salicaria*			
Spotted knapweed	*Centaurea maculosa*	✓		✓
Squarrose knapweed	*Centaurea virgata*		✓	✓
St. Johnswort	*Hypericum perforatum*	✓		
Sulfur cinquefoil	*Potentilla recta*			✓
Yellow starthistle	*Centaurea solstitialis*			✓
Yellow toadflax	*Linaria vulgaris*	✓	✓	
Utah State-listed Class B Weeds (Control)				
Bermudagrass	*Cynodon dactylon*			
Dalmatian toadflax	*Linaria dalmatica*	✓	✓	✓
Dyer's woad	*Isatis tinctoria*	✓	✓	✓
Hoary cress	*Cardaria draba*	✓	✓	✓
Musk thistle	*Carduus nutans*	✓	✓	✓
Poison hemlock	*Conium maculatum*		✓	
Perennial pepperweed	*Lepidium latifolium*	✓		✓
Russian knapweed	*Acroptilon repens*	✓	✓	✓
Scotch thistle	*Onopordum acanthium*	✓	✓	✓
Utah State-listed Class C Weeds (Containment)				
Canada thistle	*Cirsium arvense*	✓	✓	✓
Field bindweed	*Convolvulus arvensis*			✓
Houndstongue	*Cynoglossum officinale*	✓	✓	✓
Salt cedar	*Tamarix chinensis, T. parviflora,* and *T. ramosissima*		✓	✓
Quackgrass	*Elytrigia repens*			✓
County-listed Weeds				
Blue flowering lettuce (Juab County)	*Lactuca tatarica*			
Common teasel (Uintah County)	*Dipsacus fullonum*			✓
Puncturevine (Uintah County)	*Tribulus terrestris*			✓
Russian-olive (Carbon, Duchesne, Grand, and Uintah counties)	*Elaeagnus angustifolia*	✓		✓
Water hemlock (Duchesne County)	*Cicuta maculata*			

SOURCE: U.S. Forest Service 2013a
NOTES:
[1]Nomenclature follows Utah Department of Agriculture and Food 2009, 2010.
✓ = Indicates status as a state-listed noxious weed species or the presence of a state- or county-listed species in a National Forest.

J.3 Migratory Birds

Tables J-6 and J-7 provide background information on bird species protected under the Migratory Bird Treaty Act (MBTA) that are identified by agencies or conservation organizations as declining or otherwise of conservation and management priorities, and that may be present in the Project area. While all species listed under the MBTA are protected equally by that law, memoranda of understanding between federal land-management agencies, including the BLM and USFS and the FWS have included commitments to focus attention towards bird species of concern in the decision-making process. These tables are intended to identify those species, to inform ongoing planning efforts for the Project-related reclamation actions, vegetation management, and other habitat-altering activities that may be modified to achieve migratory bird conservation management priorities.

Table J-6 identifies bird species that, in addition to protections provided to all birds listed under the MBTA, are specifically protected or identified for conservation through the following efforts.

- Endangered Species Act
- Bald and Golden Eagle Protection Act
- Birds of Conservation Concern identified by the FWS
- BLM Sensitive species
- USFS Sensitive species
- USFS Management Indicator Species (MIS)
- North American Waterfowl Management Plan (NAWMP)
- North American Waterbird Conservation Plan (NAWCP)
- U.S. Shorebird Conservation Plan (USSCP)
- Game Birds Below Desired Condition (GBBDC)
- Wyoming Species of Greatest Conservation Need (SGCN)
- Colorado state-listed as endangered (SE), threatened (ST), or a species of concern (SC)
- Utah species of concern (SPC)
- Partners in Flight watchlist species
- State of the Birds 2014 watchlist and declining species

For each species listed in Table J-6, Table J-7 provides a summary of natural history information and identified threats. This information is intended to indicate when each species may be present in the Project area, seasonal activities in the Project area (e.g., nesting, wintering), and whether the Project may contribute to existing, identified threats that may be contributing to population declines.

J.4 Special Status Species Lists

Special status species include species listed as threatened, endangered, or candidates for listing under the Endangered Species Act (ESA); species listed as sensitive by the USFS and BLM; and species assigned a special status by the Wyoming, Colorado, or Utah. The species analyzed were compiled from lists of threatened, endangered, and candidate species from the FWS (county level), BLM sensitive species (state level), USFS sensitive species (forest level), or species protected by the States of Wyoming, Colorado, and/or Utah.

J.4.1 Federal Threatened, Endangered, and Candidate Species

- Wyoming – Carbon and Sweetwater counties (FWS 2014a)
- Colorado – Garfield, Mesa, Moffat, Rio Blanco, and Routt counties (FWS 2014b)
- Utah – Carbon, Duchesne, Emery, Grand, Juab, Sanpete, Uintah, Utah, and Wasatch counties (FWS 2014c)

J.4.2 State Protected Species

- Wyoming
  - List of animals – Wyoming Game and Fish Nongame Species of Special Concern. January 2005 (Wyoming Game and Fish Department [WGFD] 2005a, b)
  - List of birds – Wyoming Game & Fish Nongame Species of Special Concern. January 2005 (WGFD 2005a)
- Colorado
  - List of animals – Colorado Threatened and Endangered List. July 7, 2010 (Colorado Parks and Wildlife [CPW] 2010)
- Utah
  - List of animals – Utah's State Listed Species by County. March 29, 2011 (Utah Division of Wildlife Resources [UDWR] 2011a)

J.4.3 Bureau of Land Management Sensitive Species

- Wyoming – BLM Wyoming Sensitive Species Policy and List by Field Station (Rawlins). March 31, 2010 (BLM 2010a)
- Colorado – Colorado BLM State Director's Sensitive Species List by Field Station (Little Snake, White River, Grand Junction). November 20, 2009 (BLM 2009)
- Utah
  - List of animals – Utah BLM Sensitive Fish and Wildlife Species List. December 20, 2011 (UDWR 2011b)
  - List of plants – Interim BLM Sensitive Plant List, from State Office. February 1, 2011 (BLM 2011a)

J.4.4 U.S. Forest Service Sensitive Species

- Region 4 – Intermountain Region 4 Threatened, Endangered, Proposed, and Sensitive Species; Known and Suspected Distribution by Forest (USFS 2013b)

J.4.5 U.S. Forest Service Management Indicator Species

- Ashley National Forest – Ashley National Forest Land and Resource Management Plan (LRMP) as amended (USFS 1986a)
- Manti-La Sal National Forest – Manti-La Sal National Forest LRMP as amended (USFS 1986b)
- Uinta National Forest – LRMP for the Uinta National Forest as amended (USFS 2003)

J.5 Special Status Species Tables

Special status plant species likely to occur in or near the Project area and carried forward for detailed analysis in the EIS are included on Table J-8. Special status plants that were not carried forward for analysis are listed on Table J-9. Special status wildlife species likely to occur in or near the Project area and carried forward for detailed analysis in the EIS are included on Table J-10. Special status wildlife species not carried forward for analysis are listed on Table J-11. These tables include a brief summary of the data available and the rationale used to determine which species were carried forward for detailed analysis.

TABLE J-6
STATUS OF MIGRATORY BIRD SPECIES IDENTIFIED AS BIRD SPECIES OF CONCERN IN THE PROJECT AREA

Common Name *Scientific Name*	Birds of Conservation Concern					Partners In Flight Watchlist	Bureau of Land Management Sensitive (by state)	U.S. Forest Service Sensitive or Management Indicator Species	Other	State-listed	State of the Birds 2014			
	Northern Rockies BCR 10	Southern Rockies and Colorado Plateau BCR 16	Great Basin BCR 9	U.S. Fish and Wildlife Service Region 6	National						U.S. Continental Watchlist (Red)	U.S. Continental Watchlist (Yellow)	Common Birds in Steep Decline	Distinct Populations of Conservation Concern
American bittern *Botaurus lentiginosus*		●		●				●		WY-SGCN 2				
American three-toed woodpecker *Picoides dorsalis*							UT	Ashley-SS Manti-SS Uinta-SS/MIS		WY-SGCN 2 UT-SPC				
American white pelican *Pelecanus erythrorhynchos*							CO, UT		NAWCP	UT-SPC				
American wigeon *Anas americana*									GBBDC, NAWMP				●	
Arctic tern *Sterna paradisaea*									NAWCP					
Ash-throated flycatcher *Myiarchus cinerascens*										WY-SGCN 2				
Baird's sparrow *Ammodramus bairdii*	■	■	■	●	●	●	WY					●		
Bald eagle *Haliaeetus leucocephalus*	●	●	●	●	●		WY, CO, UT	●	BGEPA	WY-SGCN 1 CO-SC UT-SPC				
Band-tailed pigeon *Patagioenas fasciata*						●			GBBDC			●		
Bank swallow *Riparia riparia*													●	
Barrow's goldeneye *Bucephala islandica*										WY-SGCN 2				
Bewick's wren *Thryomanes bewickii bewickii*		■		●	●									
Black rosy-finch *Leucosticte atrata*	●	●	●	●	●	●				WY-SGCN 2		●		
Black tern *Chlidonias niger*								●	NAWCP	WY–SGCN 2			●	
Black-crowned night-heron *Nycticorax nycticorax*					●				NAWCP	WY-SGCN 2				
Black-headed gull *Chroicocephalus ridibundus*									NAWCP					
Bobolink *Dolichonyx oryzivorus*							UT			WY-SGCN 2 UT-SPC		●		
Bonaparte's gull *Chroicocephalus philadelphia*									NAWCP					
Boreal owl *Aegolius funereus*								●Ashley-SS		WY-SGCN 2				
Brewer's blackbird *Euphagus cyanocephalus*													●	
Brewer's sparrow *Spizella breweri*	●	●	●		●	●	WY, CO	●		WY-SGCN 2				
Brown-capped rosy-finch *Leucosticte australis*		●		●	●	●				WY-SGCN 2	●			

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	Northern Rockies BCR 10	Southern Rockies and Colorado Plateau BCR 16	Great Basin BCR 9	U.S. Fish and Wildlife Service Region 6	National						U.S. Continental Watchlist (Red)	U.S. Continental Watchlist (Yellow)	Common Birds in Steep Decline	Distinct Populations of Conservation Concern
Buff-breasted sandpiper *Calidris subruficollis*				●	●				USSCP			●		
Burrowing owl *Athene cunicularia*		●		●			WY, CO, UT	●		WY-SGCN 1 CO-ST UT-SPC				
Bushtit *Psaltriparus minimus*										WY-SGCN 2				
California gull *Larus californicus*									NAWCP					
Calliope hummingbird *Stellula calliope*	●		●		●	●								
Canvasback *Aythya valisineria*									NAWMP	WY-SGCN 2				
Caspian tern *Sterna caspia*										WY-SGCN 2				
Cassin's finch *Carpodacus cassinii*	●	●		●								●		
Chestnut-collared longspur *Calcarius ornatus*		●		●				●		WY-SGCN 2		●		
Cinnamon teal *Anas cyanoptera*									NAWMP				●	
Clark's grebe *Aechmophorus clarkii*										WY-SGCN 2		●		
Common grackle *Quiscalus quiscula*													●	
Common goldeneye *Bucephala clangula*									NAWMP					
Common loon *Gavia immer*										WY-SGCN 1				
Common nighthawk *Chordeiles minor*													●	
Dickcissel *Spiza americana*					●	●				WY-SGCN 2				
Dunlin *Calidris alpina*					●				USSCP			●		
Eared grebe *Podiceps nigricollis*			●						NAWCP					
Evening grosbeak *Coccothraustes vespertinus*												●		
Ferruginous hawk *Buteo regalis*	●	●	●	●			WY, CO, UT	●		WY-SGCN 1 CO-SC UT-SPC				
Flammulated owl *Plisoscops flammeolus*	●	●	●	●	●	●	WY, CO, UT	●				●		
Forster's tern *Sterna forsteri*									NAWCP	WY-SGCN 2				

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	Northern Rockies BCR 10	Southern Rockies and Colorado Plateau BCR 16	Great Basin BCR 9	U.S. Fish and Wildlife Service Region 6	National						U.S. Continental Watchlist (Red)	U.S. Continental Watchlist (Yellow)	Common Birds in Steep Decline	Distinct Populations of Conservation Concern
Franklin's gull *Larus pipixcan*									NAWCP	WY-SGCN 2			●	
Golden eagle *Aquila chrysaetos*		●	●	●				Ashley-MIS Manti-MIS	BGEPA					
Grasshopper sparrow *Ammodramus savannarum*		●		●			UT	●		WY-SGCN 2 UT-SPC			●	
Gray vireo *Vireo vicinior*		●		●	●	●						●		
Greater sandhill crane *Grus canadensis tabida*										WY-SGCN 3 UT-SC				
Green-tailed towhee *Pipilo chlorurus*			●											
Harris's sparrow *Zonotrichia querula*					●	●						●		
Herring gull *Larus argentatus*													●	
Horned grebe *Podiceps auritus*				●										
Horned lark *Eremophila alpestris*					●								●	
Hudsonian godwit *Limosa haemastica*				●	●				USSCP			●		
Juniper titmouse *Baeolophus ridgwayi*		●								WY-SGCN 2				
Lark bunting *Calamospiza melanocorys*										WY-SGCN 2			●	
Lesser scaup *Aythya affinis*									GBBDC, NAWMP	WY-SGCN 2				
Lesser yellowlegs *Tringa flavipes*					●				USSCP			●		
Lewis's woodpecker *Melanerpes lewis*	●	●	●	●	●	●	UT	●		WY-SGCN 2 UT-SPC		●		
Lincoln's sparrow *Melospiza lincolnii*								Ashley-MIS						
Loggerhead shrike *Lanius ludovicianus*	●		●	●	●		WY	●					●	
Long-billed curlew *Numenius americanus*	●	●	●	●	●		WY, CO, UT	●	USSCP	WY-SGCN 2 CO-SC UT-SPC		●		
Mallard *Anas platyrhynchos*									GBBDC, NAWMP					
Marbled godwit *Limosa fedoa*			●	●	●				USSCP			●		
Mccown's longspur *Rhynchophanes mccownii*	●			●	●	●		●		WY-SGCN 2		●		

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	Northern Rockies BCR 10	Southern Rockies and Colorado Plateau BCR 16	Great Basin BCR 9	U.S. Fish and Wildlife Service Region 6	National						U.S. Continental Watchlist (Red)	U.S. Continental Watchlist (Yellow)	Common Birds in Steep Decline	Distinct Populations of Conservation Concern
Merlin *Falco columbarius*										WY-SGCN 3		■		
Mexican spotted owl *Strix occidentalis lucida*					●	●			ESA-T	CO-FT/ST UT-S/ESA		●		
Mountain plover *Charadrius montanus*		●		●	●		WY, CO, UT	●	USSCP	WY-SGCN 1 CO-SC UT-SPC	●			
Northern goshawk *Accipiter gentilis*							WY, CO, UT	●SS/MIS (X3)		WY-SGCN 1 UT-CS				
Northern harrier *Circus cyaneus*								●						
Northern pintail *Anas acuta*									GBBDC, NAWMP	WY-SGCN 2			●	
Northern pygmy-owl *Glaucidium gnoma*										WY-SGCN 2				
Olive-sided flycatcher *Contopus cooperi*	●				●	●		●				●		
Pectoral sandpiper *Calidris melanotos*									USSCP			●		
Peregrine falcon *Falco peregrinus*	●	●	●	●b	●		WY, CO	●SS (X3)		WY-SGCN 2 CO-SC				
Pine siskin *Spinus pinus*													●	
Pinyon jay *Gymnorhinuscyanocephalus*		●	●	●	●	●						●		
Piping plover[1] *Charadrius melodus*									ESA-T[1]	CO-FT/ST[1]	●[1]			
Prairie falcon *Falco mexicanus*		●		●										
Purple martin *Progne subis*								●						
Pygmy nuthatch *Sitta pygmaea*										WY-SGCN 2				
Redhead *Aythya americana*									GBBDC, NAWMP	WY-SGCN 2				
Red-naped sapsucker *Sphyrapicus nuchalis*								Ashley- MIS						
Ruddy turnstone *Arenaria interpres*									USSCP					
Rufous hummingbird *Selasphorus rufus*					●	●						●		
Rusty blackbird *Euphagus carolinus*					●	●							●	
Sagebrush sparrow *Artemisiospiza nevadensis*	●		●	●			WY	●		WY-SGCN 2				

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Common Name *Scientific Name*	Birds of Conservation Concern					Partners In Flight Watchlist	Bureau of Land Management Sensitive (by state)	U.S. Forest Service Sensitive or Management Indicator Species	Other	State-listed	State of the Birds 2014			
	Northern Rockies BCR 10	Southern Rockies and Colorado Plateau BCR 16	Great Basin BCR 9	U.S. Fish and Wildlife Service Region 6	National						U.S. Continental Watchlist (Red)	U.S. Continental Watchlist (Yellow)	Common Birds in Steep Decline	Distinct Populations of Conservation Concern
Sage thrasher *Oreoscoptes montanus*	●		●	●			WY			WY-SGCN 2				
Semipalmated sandpiper *Calidris pusilla*					●				USSCP			●		
Short-billed dowitcher *Limnodromus griseus*				●nb	●				USSCP			●		
Short-eared owl *Asio flammeus*				●	●	●	UT	●		WY- SGCN 2 UT-SPC			●	
Snow bunting *Plectrophenax nivalis*													●	
Snowy egret *Egretta thula*									NAWCP	WY-SGCN 2				
Snowy plover[2] *Charadrius alexandrinus*		●[2]	●[2]	●c[2]	●[2]		CO[2] UT[2]		USSCP	CO-SC[2]	●			
Solitary sandpiper *Tringa solitaria*					●									
Song sparrow *Melospiza melodia*								Ashley-MIS						
Swainson's hawk *Buteo swainsoni*	●				●	●				WY-SGCN 2				
Thayer's gull *Larus thayeri*									NAWCP					
Upland sandpiper *Bartramia longicauda*	●			●	●					WY-SGCN 2				
Veery *Catharus fuscescens*		●												
Virginia rail *Rallus limicola*										WY-SGCN 2				
Virginia's warbler *Oreothlypis virginiae*			●		●	●						●		
Warbling vireo *Vireo gilvus*								Ashley-MIS						
Western scrub-jay *Aphelocoma californica*										WY-SGCN 2				
Whimbrel (North American population) *Numenius phaeopus*					●				USSCP			●		
White-faced ibis *Plegadis chihi*							WY, CO			WY-SGCN 2				
White-throated swift *Aeronautes saxatalis*						●				CO-FE/SE				
White-winged scoter *Melanitta fusca*									NAWMP			■		
Willet *Tringa semipalmata*									USSCP			●		

TABLE J-6
STATUS OF MIGRATORY BIRD SPECIES IDENTIFIED AS BIRD SPECIES OF CONCERN IN THE PROJECT AREA

Common Name *Scientific Name*	Birds of Conservation Concern					Partners In Flight Watchlist	Bureau of Land Management Sensitive (by state)	U.S. Forest Service Sensitive or Management Indicator Species	Other	State-listed	State of the Birds 2014			
	Northern Rockies BCR 10	Southern Rockies and Colorado Plateau BCR 16	Great Basin BCR 9	U.S. Fish and Wildlife Service Region 6	National						U.S. Continental Watchlist (Red)	U.S. Continental Watchlist (Yellow)	Common Birds in Steep Decline	Distinct Populations of Conservation Concern
Williamson's sapsucker *Sphyrapicus thyroideus*	●		●											
Willow flycatcher *Empidonax traillii*	●	●	●	●c	●	●				WY-SGCN 3				
Wilson's warbler *Cardellina pusilla*													●	
Yellow-billed cuckoo *Coccyzus americanus*	●	●	●		●[3]		WY, CO, UT[3]	●SS (X3)[3]	ESA-T[3]	WY-SGCN 3 CO-SC UT-S-ESA			●	●[3]
Yellow-crowned night heron *Nyctanassa violacea*									NAWCP					

NOTES:
[1]Refers to the ESA-listed Northern Great Plains Distinct Population Segment
[2]Refers to the Interior population, which is not ESA-listed
[3]Refers to the ESA-listed Western United States Distinct Population Segment
BGEPA = Bald and Golden Eagle Protection Act
BCR = Bird Conservation Region
CO = Colorado
CO-FE/SE = Federally endangered, state endangered
CO-FT/ST = Colorado Federally Threatened/State Threatened
CO-SC = Colorado Species of Concern
ESA = Endangered Species Act
ESA-T = Threatened
GBBDC = Game Birds Below Desired Condition
MIS = Management Indicator Species
NAWCP = North American Waterfowl Conservation Plan
NAWMP = North American Waterfowl Management Plan
SPC = Species of Concern
SS = Sensitive species
USSCP = United States Shorebird Conservation Plan
UT = Utah
UT-S/ESA = Sensitive as a result of being listed under the Endangered Species Act
WY = Wyoming
WY-SGCN = Species of Greatest Conservation Need

TABLE J-7
NATURAL HISTORY AND THREATS FOR MIGRATORY BIRD SPECIES IDENTIFIED AS BIRD SPECIES OF CONCERN IN THE PROJECT AREA

Common Name *Scientific Name*	Primary Nesting Habitat	Primary Foraging Habitat	Primary Wintering Habitat	Primary Migration Habitat	Nesting Dates	Activity in Project Area	Identified Threats	Breeding Bird Survey Trends[1] (percent population change per year)			
								Western Region	Wyoming	Colorado	Utah
American bittern *Botaurus lentiginosus*	▪ Wetlands: marshes	▪ Wetlands	▪ Wetlands	▪ Wetlands	Early April through August	▪ Nesting	▪ Wetland habitat loss and degradation ▪ Disturbance at nest and roost sites ▪ Water quality	-3.4	-6.1	NA	20.3
American three-toed woodpecker *Picoides dorsalis*	▪ Montane forest, Ponderosa pine: insect-infested snags or dying trees	▪ Montane forest ▪ Ponderosa pine	▪ Irruptive migration	▪ Irruptive migration	Mid-May through late July	▪ Year-round	▪ Habitat loss: timber harvesting of old-growth coniferous forests and removal of snags	4.0	5.1	5.0	14.5
American white pelican *Pelecanus erythrorhynchos*	▪ Water: islands and bays free of mammalian predators	▪ Water	▪ Water	▪ Water	August through mid-September	▪ Migration	▪ Disturbance at nest and roost sites: extremely sensitive ▪ Degradation of habitat: permanent flooding or drainage	4.9	11.0	12.6	7.6
American wigeon *Anas americana*	▪ Wetlands: marshes, freshwater areas with exposed shoreline	▪ Wetlands ▪ Disturbed/developed: manicured lawns	▪ Wetlands	▪ Wetlands ▪ Water	Early May through mid-August	▪ Nesting ▪ Wintering	▪ Wetland habitat loss	1.0	-0.6	6.7	14.5
Arctic tern *Sterna paradisaea*	▪ Arctic tundra ▪ Boreal forest	▪ Water	▪ Water: Antarctic icebergs and pack ice	▪ Water ▪ Wetlands: marshes	Late May through July	▪ Migration: rare inland	▪ Disturbance at nest and roost sites ▪ Over-fishing: sensitive to food availability	NA	NA	NA	NA
Ash-throated flycatcher *Myiarchus cinerascens*	▪ Shrub/shrub steppe ▪ Riparian ▪ Pinyon-juniper	▪ Shrub/shrub steppe ▪ Riparian	▪ Shrub/shrub steppe ▪ Riparian	▪ Shrub/shrub steppe ▪ Riparian	Mid-March through early August	▪ Nesting	▪ Loss and degradation of habitat: clearing, grazing, urbanization	0.8	-4.5	3.7	2.5
Baird's sparrow *Ammodramus bairdii*	▪ Grasslands: shortgrass prairie	▪ Grasslands	▪ Grasslands	▪ Grasslands	Mid-May through mid-August	▪ Nesting	▪ Habitat loss: grassland conversion to cropland and exotic vegetation	NA	20.2	NA	NA
Bald eagle *Haliaeetus leucocephalus*	▪ Riparian: coasts, rivers and large lakes in open areas.	▪ Water: systems with large fish ▪ May scavenge in other vegetation communities	▪ Riparian	▪ Riparian	Late March through mid-September	▪ Nesting ▪ Wintering	▪ Pesticides and other environmental contaminants ▪ Collisions with structures ▪ Habitat degradation: human development ▪ Human persecution: illegal shooting ▪ Disturbance at nest and roost sites	4.2	9.2	16.3	NA
Band-tailed pigeon *Patagioenas fasciata*	▪ Montane forest ▪ Ponderosa pine ▪ Pinyon-juniper	▪ Montane forest ▪ Agriculture	▪ Montane forest	▪ Montane forest	February through October	▪ Nesting: south	▪ Harvest: shooting and trapping	-2.3	NA	-4.5	-1.6
Bank swallow *Riparia riparia*	▪ Water: requires vertical banks, cliffs, and bluffs for nesting colonies	▪ Water	▪ Grasslands ▪ Wetlands	▪ Wetlands	April through August	▪ Nesting	▪ Habitat degradation: elimination of natural flood regimes	-1.7	1.4	3.1	-0.7

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Common Name *Scientific Name*	Primary Nesting Habitat	Primary Foraging Habitat	Primary Wintering Habitat	Primary Migration Habitat	Nesting Dates	Activity in Project Area	Identified Threats	Breeding Bird Survey Trends[1] (percent population change per year)			
								Western Region	Wyoming	Colorado	Utah
Barrow's goldeneye *Bucephala islandica*	▪ Water: ponds, lakes, and rivers with abundant aquatic vegetation; nests in tree or rock crevice	▪ Water	▪ Water	▪ Water	April through September	▪ Wintering	▪ Degradation of habitat: removal of snags as well as other forestry practices	-0.8	-3.6	NA	NA
Bewick's wren *Thryomanes bewickii bewickii*	▪ Mountain shrub ▪ Riparian	▪ Mountain shrub ▪ Riparian	▪ Short-distance migration	▪ Short-distance migration	Mid-April through August	▪ Year-round	▪ Range expansion of House Wrens due to human-caused habitat changes	-0.6	2.4	3.3	0.8
Black rosy-finch *Leucosticte atrata*	▪ Alpine: above timberline on tundra	▪ Alpine tundra	▪ Altitudinal migration	▪ Altitudinal migration	Mid-June through August	▪ Year-round	▪ Climate change	NA	NA	NA	NA
Black tern *Chlidonias niger*	▪ Freshwater wetlands: tall emergent vegetation	▪ Freshwater wetlands: tall emergent vegetation	▪ Marine habitats	▪ Wetlands: freshwater lakes and rivers.	Mid-May through August	▪ Nesting	▪ Loss and degradation of wetland habitat	-3.8	NA	NA	NA
Black-crowned night-heron *Nycticorax nycticorax*	▪ Wetlands: marshes, swamps, ponds, lakes, and lagoons	▪ Wetlands ▪ Water	▪ Wetlands	▪ Wetlands	January through August	▪ Nesting	▪ Wetland habitat loss and degradation ▪ Water quality: organochloride and heavy metal pollution	-1.8	-8.3	-7.5	-1.1
Black-headed gull *Chroicocephalus ridibundus*	▪ Wetlands: marshes as well as vegetated ponds and lakes	▪ Water	▪ Water	▪ Water	Mid-April through July	▪ Migration	▪ Wetland habitat loss and degradation	NA	NA	NA	NA
Bobolink *Dolichonyx oryzivorus*	▪ Grassland: tall-grass to mixed grass prairie of Midwestern U.S.	▪ Grasslands	▪ Pampas grasslands: South America	▪ Grasslands ▪ Agriculture	Late May through July	▪ Nesting	▪ Disturbance at nest and roost sites: predation, flooding, adverse weather, and human disturbance	-2.9	2.0	NA	NA
Bonaparte's gull *Chroicocephalus philadelphia*	▪ Wetlands: trees adjacent to water	▪ Wetlands ▪ Water	▪ Wetland ▪ Water	▪ Wetlands ▪ Water	June through July	▪ Migration	▪ Wetland habitat loss and degradation	NA	NA	NA	NA
Boreal owl *Aegolius funereus*	▪ Montane forest	▪ Montane forest	▪ Irruptive migration	▪ Irruptive migration	Late March through July	▪ Year-round	▪ Habitat loss: timber harvest of mature stands in forests	NA	NA	NA	NA
Brewer's blackbird *Euphagus cyanocephalus*	▪ Agricultural fields ▪ Developed/disturbed areas: parks, lawns, and golf courses	▪ Agricultural fields ▪ Developed/disturbed areas: parks, lawns, and golf courses	▪ Agricultural fields ▪ Developed/Disturbed areas: parks, lawns, and golf courses	▪ Agricultural fields ▪ Developed/disturbed areas: parks, lawns, and golf courses	Early April through mid-July	▪ Nesting: north ▪ Wintering: south	▪ Inadvertent pest control practices due to its association with pest species ▪ Disturbance at nest and roost sites: plowing of agricultural fields	-2.1	-1.7	-2.4	-6.6
Brewer's sparrow *Spizella breweri*	▪ Sagebrush ▪ Shrub/shrub steppe	▪ Sagebrush ▪ Shrub/shrub steppe	▪ Sagebrush ▪ Desert scrub	▪ Sagebrush ▪ Shrub/shrub steppe	Mid-May through early August	▪ Nesting	▪ Habitat loss: conversion of native shrublands to agriculture	-0.6	-0.4	-2.6	-1.3
Brown-capped rosy-finch *Leucosticte australis*	▪ Alpine	▪ Alpine	▪ Altitudinal migration	▪ Altitudinal migration	Mid-June through early September	▪ Year-round	▪ Climate change	NA	NA	NA	NA

TABLE J-7
NATURAL HISTORY AND THREATS FOR MIGRATORY BIRD SPECIES IDENTIFIED AS BIRD SPECIES OF CONCERN IN THE PROJECT AREA

Common Name *Scientific Name*	Primary Nesting Habitat	Primary Foraging Habitat	Primary Wintering Habitat	Primary Migration Habitat	Nesting Dates	Activity in Project Area	Identified Threats	Breeding Bird Survey Trends[1] (percent population change per year)			
								Western Region	Wyoming	Colorado	Utah
Buff-breasted sandpiper *Calidris subruficollis*	▪ Arctic tundra	▪ While migrating: grasslands, wetlands, and developed/ disturbed	▪ Pampas grasslands: South America	▪ Grasslands ▪ Wetlands ▪ Developed/disturbed: golf courses, cemeteries, airports, and lawns.	Early June through August	▪ Migration	▪ Habitat degradation and loss. ▪ Disturbance at nest and roost sites ▪ Pesticides and other environmental contaminants	NA	NA	NA	NA
Burrowing owl *Athene cunicularia*	▪ Agriculture ▪ Grasslands: often associated with prairie dog colonies	▪ Agriculture ▪ Grasslands	▪ Agriculture ▪ Grasslands	▪ Agriculture ▪ Grasslands	Mid-March through August	▪ Nesting	▪ Pesticides and other environmental contaminants: carbofuran ▪ Habitat loss: prairie dog towns	-0.8	0.2	-0.5	-0.5
Bushtit *Psaltriparus minimus*	▪ Pinyon-juniper ▪ Riparian: thickets ▪ Shrub/shrub steppe	▪ Pinyon-juniper ▪ Riparian: thickets ▪ Shrub/shrub steppe	▪ Non-migratory	▪ Non-migratory	Early March through August	▪ Year-round	▪ Limited Wyoming range ▪ No known human activity impacts ▪ Predation primary cause of nest failure; weather also may have an effect in particularly rainy winters	-0.8	NA	1.0	2.6
California gull *Larus californicus*	▪ Water: islands in lakes and rivers	▪ Water ▪ Wetlands	▪ Water ▪ Wetlands	▪ Water ▪ Wetlands	Early May through July	▪ Migration	▪ Ingestion of plastics ▪ Degradation of habitat ▪ Disturbance at nest sites	-1.5	-7.1	5.2	4.6
Calliope hummingbird *Stellula calliope*	▪ Montane Forests	▪ Montane forests ▪ Mountain shrub	▪ Arid thorn-forests	▪ Riparian ▪ Grasslands: meadows	May through mid-August	▪ Nesting	▪ Habitat degradation. ▪ Collisions with vehicles and windows	-0.2	-1.3	NA	NA
Canvasback *Aythya valisineria*	▪ Wetlands: marsh and ponds ▪ Water: open, freshwater lakes and rivers	▪ Wetlands ▪ Water	▪ Wetlands ▪ Water	▪ Wetlands ▪ Water	Mid-April through September	▪ Nesting: north ▪ Wintering: south	▪ Pesticides and other environmental contaminant ▪ Ingestion of plastics and lead ▪ Wetland habitat loss and degradation	-0.9	4.0	NA	NA
Caspian tern *Sterna caspia*	▪ Water: flat, sand or gravel beaches.	▪ Wetlands ▪ Water	▪ Wetlands ▪ Water	▪ Wetlands ▪ Water	Mid-May through August	▪ Migration ▪ Nesting: potential	▪ Pesticides and other environmental contaminants ▪ Disturbance at nest sites: very sensitive	NA	NA	NA	NA
Cassin's finch *Carpodacus cassinii*	▪ Montane Forest: open coniferous forest at higher elevations	▪ Montane forest	▪ Altitudinal migration	▪ Altitudinal migration	Mid-May through mid-July	▪ Year-round	▪ Habitat degradation	-2.8	-2.2	-0.6	-1.5
Chestnut-collared longspur *Calcarius ornatus*	▪ Grasslands: shortgrass prairie	▪ Grasslands: shortgrass prairie	▪ Grasslands: shortgrass prairie.	▪ Grasslands: shortgrass prairie	Early May through early August	▪ Migration ▪ Nesting: potential in north	▪ Pesticides and other contaminants: seeds treated with fungicides ▪ Habitat loss: conversion of grasslands to cropland ▪ Disturbance at nest and roost sites	NA	-9.4	-2.7	NA
Cinnamon teal *Anas cyanoptera*	▪ Wetlands: alkaline	▪ Wetlands	▪ Wetlands	▪ Wetlands	Late March through mid-September	▪ Nesting	▪ Water quality: selenium and carbofuran pollution ▪ Wetland habitat loss	-3.3	-2.9	-1.7	1.3

TABLE J-7
NATURAL HISTORY AND THREATS FOR MIGRATORY BIRD SPECIES IDENTIFIED AS BIRD SPECIES OF CONCERN IN THE PROJECT AREA

Common Name *Scientific Name*	Primary Nesting Habitat	Primary Foraging Habitat	Primary Wintering Habitat	Primary Migration Habitat	Nesting Dates	Activity in Project Area	Identified Threats	Breeding Bird Survey Trends[1] (percent population change per year)			
								Western Region	Wyoming	Colorado	Utah
Clark's grebe *Aechmophorus clarkii*	▪ Water: lakes ▪ Wetlands: marshes	▪ Water	▪ Water ▪ Wetlands	▪ Water	Early June through August	▪ Nesting	▪ Oil spills ▪ Mortality from gill nets ▪ Disturbance at nest sites	-2.3	2.5	2.4	9.5
Common grackle *Quiscalus quiscula*	▪ Developed/disturbed	▪ Developed/disturbed	▪ Developed/disturbed	▪ Developed/disturbed	March through early July	▪ Nesting	▪ One of the most abundant species in North America, although a common bird in steep decline	-0.7	-0.1	2.4	-2.3
Common goldeneye *Bucephala clangula*	▪ Wetlands: lakes and rivers adjacent to forests	▪ Wetlands ▪ Water	▪ Water	▪ Water	Mid-April through August	▪ Wintering	▪ Wetland habitat loss and degradation	-0.4	-2.8	NA	NA
Common loon *Gavia immer*	▪ Water: lakes and ponds	▪ Water	▪ Water	▪ Water	Mid-May through October	▪ Migration	▪ Pesticides and other environmental contaminants: mercury, lead, organic pollutants, acid rain ▪ Fishing net and trap entanglement ▪ Oil spills ▪ Disturbance at nest and roost sites: recreational activity ▪ Habitat degradation and loss: shoreline development, reservoir management. ▪ Diseases: botulism and others	0.3	-2.2	NA	NA
Common nighthawk *Chordeiles minor*	▪ Developed/disturbed: burned forests and grasslands	▪ Developed/disturbed: burned forests and grasslands	▪ Open landscapes: South America	▪ Developed/disturbed: burned forests and grasslands	Late May through August	▪ Nesting	▪ Pesticides and other environmental contaminants: mosquito control ▪ Vehicle collisions	-2.3	-0.8	-1.3	-3.9
Dickcissel *Spiza americana*	▪ Grasslands: mesic ▪ Agriculture	▪ Grasslands: mesic ▪ Agriculture	▪ Grasslands: mesic ▪ Agriculture	▪ Grasslands: mesic ▪ Wetlands	Early May through August	▪ Nesting	▪ Pesticides and other environmental contaminants: deliberately poisoned in Venezuela ▪ Habitat alteration: conversion of native grasslands to croplands has reduced breeding success ▪ Disturbance at nest sites: hay-mowing	8.5	0.8	5.6	NA
Dunlin *Calidris alpina*	▪ Arctic tundra	▪ Wetlands	▪ Wetlands	▪ Wetlands	Late May through July	▪ Migration	▪ Pesticide and other environmental contaminants ▪ Disturbance at nest and roost sites	NA	NA	NA	Na
Eared grebe *Podiceps nigricollis*	▪ Water: ponds, lakes ▪ Wetlands: marshes	▪ Water: ponds, lakes ▪ Wetlands: marshes	▪ Marine habitats	▪ Salt lakes	Early May through August	▪ Nesting	▪ Collisions with structures ▪ Wetland habitat loss and degradation ▪ Disturbance at nest and roost sites	2.0	-3.5	6.1	4.8

TABLE J-7
NATURAL HISTORY AND THREATS FOR MIGRATORY BIRD SPECIES IDENTIFIED AS BIRD SPECIES OF CONCERN IN THE PROJECT AREA

Common Name *Scientific Name*	Primary Nesting Habitat	Primary Foraging Habitat	Primary Wintering Habitat	Primary Migration Habitat	Nesting Dates	Activity in Project Area	Identified Threats	Breeding Bird Survey Trends[1] (percent population change per year)			
								Western Region	Wyoming	Colorado	Utah
Evening grosbeak *Coccothraustes vespertinus*	▪ Montane forest	▪ Montane forest	▪ Irruptive migration	▪ Irruptive migration	Mid-May through early August	▪ Year-round	▪ Collisions with structures	-3.6	-16.3	-0.6	-1.3
Ferruginous hawk *Buteo regalis*	▪ Grasslands ▪ Shrub/shrub steppe	▪ Grasslands ▪ Shrub/shrub steppe	▪ Grasslands ▪ Shrub/shrub steppe	▪ Grasslands ▪ Shrub/shrub steppe	Late March through mid-August	▪ Nesting: north ▪ Year-round: south	▪ Collisions with structures and vehicles ▪ Disturbance at nest and roost sites: especially near mining sites ▪ Habitat degradation and loss: conversion to croplands, grazing, mining	1.0	0.3	0.3	-1.4
Flammulated owl *Plisoscops flammeolus*	▪ Ponderosa pine ▪ Mature, open, Montane forest	▪ Ponderosa pine ▪ Mature, open, Montane forest	▪ Irruptive migration	▪ Irruptive migration	Early May through mid-August	▪ Nesting	▪ Habitat loss: removal of snags, fire suppression ▪ Pesticides and other environmental contaminants	NA	NA	NA	NA
Forster's tern *Sterna forsteri*	▪ Wetlands: marshes.	▪ Wetlands: marshes	▪ Wetlands: marshes	▪ Wetlands: marshes	Early May through mid-August	▪ Migration	▪ Pesticides and other environmental contaminants ▪ Disturbance at nest and roost sites	-2.5	-5.0	NA	4.4
Franklin's gull *Larus pipixcan*	▪ Wetlands: marshes.	▪ Water and wetlands	▪ Water and wetlands	▪ Water and wetlands	Early May through July	▪ Migration	▪ Disturbance at nest and roost sites: very sensitive. Pesticides and other environmental contaminants ▪ Loss of wetland habitats	-7.0	20.9	NA	-12.8
Golden eagle *Aquila chrysaetos*	▪ Barren/sparsely Vegetated: canyons and cliffs ▪ Shrub/shrub steppe ▪ Big sagebrush ▪ Montane shrubland ▪ Grasslands ▪ Ponderosa pine ▪ Pinyon-juniper	▪ Grasslands ▪ Shrub/shrub steppe ▪ Big sagebrush ▪ Montane shrubland	▪ Partial migrant	▪ Partial migrant	Early April through August	▪ Year-round	▪ Inadvertently poisoned by ranchers ▪ Pesticide and other environmental contaminants ▪ Ingestion of lead ▪ Collision with structures and electrocutions ▪ Degradation of habitat: catastrophic fires, mining, development ▪ Disturbance at nest and roost sites	-0.2	1.4	-0.5	-1.6
Grasshopper sparrow *Ammodramus savannarum*	▪ Grasslands: preferred ▪ Agriculture	▪ Grasslands: preferred ▪ Agriculture	▪ Grasslands: preferred ▪ Agriculture	▪ Grasslands: preferred ▪ Agriculture	Early June through August	▪ Nesting	▪ Habitat loss and degradation: conversion of native prairie to agricultural fields, fire suppression/shrub invasion	-2.3	0.9	-5.1	-1.4
Gray vireo *Vireo vicinior*	▪ Pinyon-juniper	▪ Pinyon-juniper	▪ Desert scrubland	▪ Pinyon-juniper	Early May through August	▪ Nesting	▪ Habitat degradation: livestock grazing may concentrate cowbirds	0.9	NA	1.7	-0.5

TABLE J-7
NATURAL HISTORY AND THREATS FOR MIGRATORY BIRD SPECIES IDENTIFIED AS BIRD SPECIES OF CONCERN IN THE PROJECT AREA

Common Name *Scientific Name*	Primary Nesting Habitat	Primary Foraging Habitat	Primary Wintering Habitat	Primary Migration Habitat	Nesting Dates	Activity in Project Area	Identified Threats	Breeding Bird Survey Trends[1] (percent population change per year)			
								Western Region	Wyoming	Colorado	Utah
Greater sandhill crane *Grus canadensis tabida*	▪ Wetlands	▪ Wetlands ▪ Agriculture	▪ Wetlands ▪ Agriculture	▪ Wetlands	Early April through May	▪ Nesting ▪ Migration	▪ Habitat loss: wetland breeding areas, changes in agricultural practices in wintering and migratory areas, invasive plants ▪ Collisions with structures: power lines, wind turbines ▪ Pesticides and other environmental contaminants ▪ Disturbance at nest and roost locations	NA	NA	15.8	NA
Green-tailed towhee *Pipilo chlorurus*	▪ Shrub/shrub steppe	▪ Shrub/shrub steppe	▪ Lower Sonoran and Upland Sonoran Desert	▪ Variable: Riparian, shrub/shrub steppe	Early May through early August	▪ Nesting	▪ Habitat loss and degradation: conversion to rangelands, fire suppression	-0.4	0.3	-0.9	3.2
Harris's sparrow *Zonotrichia querula*	▪ Arctic tundra: Canada	▪ While migrating: riparian and agriculture	▪ Riparian ▪ Agriculture	▪ Riparian ▪ Agriculture	June and July	▪ Migration	▪ Habitat loss and degradation	NA	NA	NA	NA
Herring gull *Larus argentatus*	▪ Water: islands and rocky terraces near or in lakes	▪ Water	▪ Water	▪ Water	Early May through August	▪ Migration	▪ Water quality: oil spills ▪ Overfishing ▪ Deliberate control measures	-3.2	NA	NA	NA
Horned grebe *Podiceps auritus*	▪ Wetlands: marshes	▪ Water	▪ Water	▪ Water	Mid-May through early October	▪ Migration	▪ Water quality: oil spills. ▪ Habitat loss and degradation	-4.7	NA	NA	NA
Horned lark *Eremophila alpestris*	▪ Grasslands ▪ Agriculture	▪ Grasslands ▪ Agriculture	▪ Partial migrant	▪ Partial migrant	Early March through July	▪ Year-round	▪ Habitat loss and degradation ▪ Pesticides and other environmental contaminants	-1.6	-1.9	-1.5	-1.1
Hudsonian godwit *Limosa haemastica*	▪ Wetlands: sedge meadows intermixed with montane forests	▪ Wetlands	▪ Wetlands	▪ Wetlands	Mid-May through July	▪ Migration	▪ Degradation of habitat: energy development on breeding grounds, human-aided common raven population increase	NA	NA	NA	NA
Juniper titmouse *Baeolophus ridgwayi*	▪ Pinyon-juniper	▪ Pinyon-juniper	▪ Non-migratory	▪ Non-migratory	Mid-March through June	▪ Year-round	▪ Habitat loss and degradation: juniper removal	-0.2	NA	-0.9	2.2
Lark bunting *Calamospiza melanocorys*	▪ Grasslands ▪ Agriculture	▪ Grasslands ▪ Agriculture	▪ Grasslands ▪ Agriculture	▪ Grasslands ▪ Agriculture	Mid-May through July	▪ Nesting	▪ Pesticides and other environmental contaminants ▪ Collisions with structures and vehicles ▪ Mortality at stock tanks ▪ Disturbance at nest sites	-4.7	-3.0	-4.6	NA
Lesser scaup *Aythya affinis*	▪ Wetlands: marsh, Prairie Pothole Region, uplands near lakes	▪ Water ▪ Wetlands	▪ Water ▪ Wetlands	▪ Water ▪ Wetlands	Early June through early September	▪ Nesting: north ▪ Wintering: south	▪ Water quality: oil spills and other environmental contaminants ▪ Fishing net entanglement. ▪ Wetland habitat loss and degradation	2.5	-3.0	NA	4.2

TABLE J-7
NATURAL HISTORY AND THREATS FOR MIGRATORY BIRD SPECIES IDENTIFIED AS BIRD SPECIES OF CONCERN IN THE PROJECT AREA

Common Name *Scientific Name*	Primary Nesting Habitat	Primary Foraging Habitat	Primary Wintering Habitat	Primary Migration Habitat	Nesting Dates	Activity in Project Area	Identified Threats	Breeding Bird Survey Trends[1] (percent population change per year)			
								Western Region	Wyoming	Colorado	Utah
Lesser yellowlegs *Tringa flavipes*	▪ Arctic tundra ▪ Boreal forest	▪ Wetlands	▪ Wetlands	▪ Wetlands	Early May through July	▪ Migration	▪ Shooting and trapping: in the Caribbean ▪ Wetland habitat loss and degradation: drainage, road construction	NA	NA	NA	NA
Lewis's woodpecker *Melanerpes lewis*	▪ Developed/disturbed: ponderosa pine post logging or burn ▪ Riparian	▪ Developed/disturbed: ponderosa pine post logging or burn ▪ Riparian	▪ Irruptive migration	▪ Irruptive migration	Early May through August	▪ Nesting	▪ Habitat degradation: fire suppression, intensive grazing, timber harvest of snags ▪ Disturbance at nest and roost sites: competition with European starling	-2.7	0.6	-2.7	NA
Lincoln's sparrow *Melospiza lincolnii*	▪ Riparian: densely shrubbed	▪ Riparian	▪ Tropical forests: Mexico	▪ Riparian	June through mid-August	▪ Nesting	▪ Pesticides: reduction of foraging habitat ▪ Degradation of habitat: livestock grazing ▪ Disturbance at nest sites	2.9	2.6	1.2	6.1
Loggerhead shrike *Lanius ludovicianus*	▪ Agricultural fields ▪ Developed/disturbed: parks, lawns, golf courses ▪ Shrub/shrub steppe	▪ Agricultural fields ▪ Disturbed/developed: parks, lawns, golf courses ▪ Shrub/shrub steppe	▪ Partial migrant	▪ Partial migrant	Early March through early July	▪ Year-round	▪ Pesticides and other environmental contaminants	-1.8	-0.7	-0.6	-0.7
Long-billed curlew *Numenius americanus*	▪ Grasslands: short-grass prairie with flat to rolling topography, near water ▪ Desert shrublands	▪ Wetlands	▪ Wetlands: marine	▪ Grasslands ▪ Agriculture ▪ Wetlands	Early April through July	▪ Nesting: north ▪ Migration: south	▪ Degradation of habitat: conversion of grasslands to agriculture, invasion of non-native plants ▪ Pesticides and other environmental contaminants ▪ Disturbance at nest and roost sites	1.3	1.7	-4.6	0.5
Mallard *Anas platyrhynchos*	▪ Wetlands	▪ Water ▪ Wetlands ▪ Agriculture	▪ Partial migrant	▪ Partial migrant	April through September	▪ Year-round	▪ Water quality: oil spills ▪ Ingestion of lead ▪ Collisions: susceptible to transmission lines that cross water ▪ Wetland habitat degradation	0.4	-0.6	-1.4	3.0
Marbled godwit *Limosa fedoa*	▪ Grasslands: native prairie ▪ Wetlands: marshes, flooded plains	▪ Wetlands: mudflats	▪ Coastal Wetlands	▪ Wetlands	Early May through July	▪ Migration	▪ Habitat degradation and loss: grassland conversion to agriculture, tidal mud flat loss ▪ Pesticides and other environmental contaminants ▪ Ingestion of lead and plastics ▪ Collisions with structures ▪ Disturbance at nest and roost sites	4.3	NA	NA	NA

TABLE J-7
NATURAL HISTORY AND THREATS FOR MIGRATORY BIRD SPECIES IDENTIFIED AS BIRD SPECIES OF CONCERN IN THE PROJECT AREA

Common Name *Scientific Name*	Primary Nesting Habitat	Primary Foraging Habitat	Primary Wintering Habitat	Primary Migration Habitat	Nesting Dates	Activity in Project Area	Identified Threats	Breeding Bird Survey Trends[1] (percent population change per year)			
								Western Region	Wyoming	Colorado	Utah
Mccown's longspur *Rhynchophanes mccownii*	▪ Grasslands: shortgrass prairie	▪ Grasslands	▪ Grasslands	▪ Grasslands	Early May through mid-August	▪ Nesting: north ▪ Migration: south	▪ Habitat degradation and loss: grassland conversion to agricultural fields, fire suppression ▪ Disturbance at nest sites: very sensitive	-2.1	-0.1	1.1	NA
Merlin *Falco columbarius*	▪ Open habitat in Montane forest	▪ Montane forest	▪ Montane Forest	▪ Montane Forest	Early April through August	▪ Wintering	▪ Degradation of habitat ▪ Pesticides and other environmental contaminants	3.2	-1.5	NA	NA
Mexican spotted owl *Strix occidentalis lucida*	▪ Barren/sparsely vegetated: narrow canyons ▪ Montane forest	▪ Barren/sparsely Vegetated: narrow canyons ▪ Montane forest	▪ Altitudinal migration	▪ Altitudinal migration	Early March through early June	▪ Year-round	▪ Degradation of habitat: logging practices	NA	NA	NA	NA
Mountain plover *Charadrius montanus*	▪ Grasslands: shortgrass prairie and heavily grazed areas	▪ Grasslands	▪ Developed/Disturbed: burned agricultural fields and sparsely vegetated habitats	▪ Grasslands: shortgrass prairie and heavily grazed areas	Mid-April through mid-August	▪ Nesting	▪ Degradation of habitat: removal of native grazers leading to shrub and tall grass invasion	-3.3	-0.6	-1.8	NA
Northern goshawk *Accipiter gentilis*	▪ Ponderosa pine ▪ Montane forest: sparsely vegetated understory and closed canopy	▪ Ponderosa pine ▪ Montane forest	▪ Partial migrant	▪ Partial migrant	Early April through July	▪ Year-round	▪ Degradation of habitat: timber harvest ▪ Disturbance at nest and roost sites	-0.1	0.1	3.5	-2.5
Northern harrier *Circus cyaneus*	▪ Wetlands: marshes, wet meadows and mesic grasslands	▪ Wetlands: marshes, wet meadows and mesic grasslands	▪ Partial migrant	▪ Partial migrant	Early April through mid-September	▪ Year-round	▪ Wetland habitat loss and degradation ▪ Pesticides and other environmental contaminants	-0.7	-1.0	-2.5	-2.2
Northern pintail *Anas acuta*	▪ Shallow wetlands: low vegetation, mesic grass fields, Prairie Pothole Region	▪ Shallow wetlands	▪ Shallow wetlands	▪ Water ▪ Wetlands	Early April through July	▪ Nesting	▪ Wetland habitat loss and degradation ▪ Pesticides and other environmental contaminants ▪ Collisions with structures	-4.3	-3.5	-4.6	2.8
Northern pygmy-owl *Glaucidium gnoma*	▪ Montane forest: dense stands ▪ Ponderosa pine	▪ Montane forest ▪ Ponderosa pine	▪ Altitudinal migration	▪ Altitudinal migration	Early April through June	▪ Year-round	▪ Habitat degradation: forestry practices that affect prey, woodpeckers, and nest cavities	0.9	4.8	3.8	NA
Olive-sided flycatcher *Contopus cooperi*	▪ Montane forest: mixed conifer	▪ Open areas in Montane forest	▪ Montane forest : Central and South America	▪ Montane forest ▪ Ponderosa pine ▪ Riparian	Early June through August	▪ Nesting	▪ Habitat degradation: fire suppression, and forest thinning	-3.0	-0.6	-1.0	-4.3
Pectoral sandpiper *Calidris melanotos*	▪ Arctic tundra	▪ Wetlands	▪ Wetlands: marshes and watered grasslands	▪ Wetlands ▪ Agriculture	June and July	▪ Migration	▪ Habitat degradation and loss: roads in breeding habitat, wetland loss in winter and migration habitat	NA	NA	NA	NA

TABLE J-7
NATURAL HISTORY AND THREATS FOR MIGRATORY BIRD SPECIES IDENTIFIED AS BIRD SPECIES OF CONCERN IN THE PROJECT AREA

Common Name *Scientific Name*	Primary Nesting Habitat	Primary Foraging Habitat	Primary Wintering Habitat	Primary Migration Habitat	Nesting Dates	Activity in Project Area	Identified Threats	Breeding Bird Survey Trends[1] (percent population change per year)			
								Western Region	Wyoming	Colorado	Utah
Peregrine falcon *Falco peregrinus*	▪ Barren/sparsely vegetated: cliffs and canyons; man-made structures also are used	▪ Open landscapes in a variety of communities	▪ Open landscapes in a variety of communities	▪ Open landscapes in a variety of communities	Late May through early August	▪ Nesting	▪ Pesticides and other environmental contaminants ▪ Collisions with structures	2.4	11.7	18.9	0.9
Pine siskin *Spinus pinus*	▪ Montane forest: coniferous and mixed-coniferous/deciduous forests	▪ Montane forest: especially in the grassy areas below the trees	▪ Irruptive migrant	▪ Irruptive migrant	Late March through July	▪ Year-round	▪ Habitat loss: clearing of forests ▪ Pesticides and other environmental contaminants	-3.5	-3.5	-2.3	-1.6
Pinyon jay *Gymnorhinuscyanocephalus*	▪ Pinyon-juniper	▪ Pinyon-juniper	▪ Non-migratory	▪ Non-migratory	Mid-February through August	▪ Year-round	▪ Habitat loss and degradation	-4.3	-4.3	-4.0	-4.6
Piping plover *Charadrius melodus*	▪ Barren/sparsely Vegetated: primarily sandy or pebble beaches	▪ Water: shorelines of lakes	▪ Barren/sparsely vegetated: beaches, mudflats, and sand flats along the Gulf of Mexico and Atlantic coasts	▪ Water ▪ Wetlands: beaches, alkali flats, reservoir shorelines	Early May through August	▪ Migration	▪ Habitat loss and degradation ▪ Egg and chick predation	NA	NA	NA	NA
Prairie falcon *Falco mexicanus*	▪ Barren/sparsely vegetated: cliffs and bluffs	▪ Open grasslands ▪ Desertscrub ▪ Shrub/shrub steppe	▪ Partial migrant	▪ Partial migrant	Early April through July	▪ Year-round	▪ Habitat degradation and loss: large-scale conversion of grasslands to agricultural fields, extensive livestock grazing ▪ Disturbance at nest and roost sites ▪ Collision with structures: fences ▪ Pesticides and other environmental contaminants ▪ Shooting and trapping	1.0	-0.5	3.0	0.4
Purple martin *Progne subis*	▪ Montane forest: requires snags with nest cavities ▪ Developed/disturbed: uses bird houses	▪ Montane forest	▪ Grasslands: South America ▪ Agriculture: South America	▪ Migrates over a variety of habitats	Early April through July	▪ Nesting	▪ Habitat degradation and loss	-5.9	NA	6.6	0.6
Pygmy nuthatch *Sitta pygmaea*	▪ Ponderosa pine ▪ Montane forest	▪ Ponderosa pine ▪ Montane forest.	▪ Non-migratory	▪ Non-migratory	Early April through July	▪ Year-round	▪ Habitat degradation and loss: fire suppression, intensive logging, and intensive grazing	-1.0	NA	0.8	-6.6
Redhead *Aythya americana*	▪ Wetlands: large marshes, prairie slough, and potholes	▪ Wetlands: large marshes, prairie slough, and potholes.	▪ Specialist of coastal ecosystems	▪ Water: lakes, rivers, and river pools	May through early September	▪ Nesting: north ▪ Wintering: south	▪ Wetland habitat degradation and loss ▪ Fishing net entanglement ▪ Disturbance at nest site	-3.2	-0.8	2.2	5.8
Red-naped sapsucker *Sphyrapicus nuchalis*	▪ Ponderosa pine ▪ Montane forest: mixed conifers and aspen	▪ Ponderosa pine ▪ Montane forest: mixed conifers and aspen	▪ Pinyon-juniper ▪ Riparian ▪ Agriculture: orchards	▪ Pine-oak woodlands ▪ Agriculture: orchards	Mid-May through early August	▪ Nesting	▪ Habitat degradation: quaking aspen removal, intensive livestock grazing in riparian areas, fire suppression	1.1	0.1	2.6	1.9

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Common Name *Scientific Name*	Primary Nesting Habitat	Primary Foraging Habitat	Primary Wintering Habitat	Primary Migration Habitat	Nesting Dates	Activity in Project Area	Identified Threats	Breeding Bird Survey Trends[1] (percent population change per year)			
								Western Region	Wyoming	Colorado	Utah
Ruddy turnstone *Arenaria interpres*	▪ High- and low-arctic rocky coasts and tundra	▪ Wetlands ▪ Water	▪ Ocean Wetlands: rocky shorelines, mudflats, sandflats	▪ Wetlands ▪ Water	June and July	▪ Migration: rare	▪ Habitat degradation and loss: coastal development ▪ Disturbance at nest and roost sites	NA	NA	NA	NA
Rufous hummingbird *Selasphorus rufus*	▪ Montane forest ▪ Riparian: thickets	▪ Montane forest ▪ Riparian: thickets	▪ Pine-oak forest: Mexico and Central America	▪ Grasslands: meadows ▪ Developed/disturbed: gardens and parks	Mid-April through mid-July	▪ Migration	▪ Habitat loss and degradation	-2.1	0.0	NA	NA
Rusty blackbird *Euphagus carolinus*	▪ Riparian ▪ Boreal forest	▪ Agriculture ▪ Wetlands ▪ Riparian ▪ Montane forest	▪ Wetlands	▪ Agriculture ▪ Wetlands ▪ Riparian	May through July	▪ Migration	▪ Degradation of habitat: clearcutting mesic woodlands ▪ Pesticides and other environmental contaminants: mercury in particular	-7.6	NA	NA	NA
Sagebrush sparrow *Artemisiospiza nevadensis*	▪ Big sagebrush	▪ Big sagebrush	▪ Big sagebrush ▪ Shrub/shrub steppe	▪ Big sagebrush ▪ Shrub/shrub steppe	Early August through July	▪ Nesting	▪ Habitat degradation: removal of big sagebrush, fire-induced exotic weed invasion, increased cowbird presence	-0.7	2.0	-4.4	-0.4
Sage thrasher *Oreoscoptes montanus*	▪ Big sagebrush	▪ Big sagebrush	▪ Big sagebrush ▪ Shrub/shrub steppe.	▪ Shrub/shrub steppe ▪ Pinyon-juniper	Mid-April through July	▪ Nesting	▪ Habitat degradation: removal of sagebrush, urbanization, conversion to agriculture	-1.4	-0.5	-1.3	-2.6
Semipalmated sandpiper *Calidris pusilla*	▪ Alpine: tundra near water	▪ Water: along the edges of lakes, open alkali ponds and sewage lagoons	▪ Water: Central America mudflats and shoreline	▪ Water: sparsely-vegetated freshwater.	June through mid-August	▪ Migration	▪ Habitat degradation on winter range ▪ Pesticides and other environmental contaminants	NA	NA	NA	NA
Short-billed dowitcher *Limnodromus griseus*	▪ Wetlands: grass or moss tundra, wet meadows, and bogs of boreal forests	▪ Wetlands: mud flats and agricultural fields	▪ Coastal mud flats and brackish lagoons	▪ Wetlands: salt marshes, sewage ponds, and flooded agricultural fields	June through early August	▪ Migration	▪ Wetland habitat degradation and loss	NA	NA	NA	NA
Short-eared owl *Asio flammeus*	▪ Grasslands	▪ Grasslands	▪ Partial migrant	▪ Partial migrant	Mid-March through June	▪ Year-round: north ▪ Wintering: south	▪ Habitat degradation: conversion of habitats to agriculture, grazing, recreation, barn owl competition	-1.8	-3.8	0.9	-0.3
Snow bunting *Plectrophenax nivalis*	▪ Alpine: arctic rocky shores, cliffs, scree, and tundra. Optimal nesting habitat is in rocky patches or boulder scree near well-vegetated areas	▪ Agricultural fields ▪ Grasslands ▪ Invasive	▪ Agricultural fields ▪ Grasslands ▪ Invasive: weedy and grassy fields, grain stubbles, and farmlands	▪ Agricultural fields, grasslands, and invasive-dominated areas such as: open weedy and grassy fields, grain stubbles, shores, and farmlands	June and July	▪ Wintering	▪ Climate change ▪ Potential for pesticide and other environmental contaminant poisoning	NA	NA	NA	NA
Snowy egret *Egretta thula*	▪ Water: lakes, rivers ▪ Wetlands: marshes	▪ Wetlands	▪ Water: freshwater swamps and lakes, ▪ Wetlands: lagoons	▪ Water ▪ Wetlands	Early April through July	▪ Nesting	▪ Pesticides and other environmental contaminants ▪ Wetland habitat degradation: oil spills	-0.6	NA	0.7	-1.6

TABLE J-7
NATURAL HISTORY AND THREATS FOR MIGRATORY BIRD SPECIES IDENTIFIED AS BIRD SPECIES OF CONCERN IN THE PROJECT AREA

Common Name *Scientific Name*	Primary Nesting Habitat	Primary Foraging Habitat	Primary Wintering Habitat	Primary Migration Habitat	Nesting Dates	Activity in Project Area	Identified Threats	Breeding Bird Survey Trends[1] (percent population change per year)			
								Western Region	Wyoming	Colorado	Utah
Snowy plover *Charadrius alexandrinus*	▪ Water: sand margins along rivers, lakes, and ponds, and dry mud flats ▪ Also uses man-made waste water ponds and reservoir margins	▪ Water	▪ Water ▪ Wetlands	▪ Water ▪ Wetlands	Mid-March through August	▪ Nesting ▪ Migration	▪ Habitat loss and degradation: expanding beach-front development ▪ Pesticides and other environmental contaminants ▪ Disturbance at nest and roost sites: predator expansion, humans recreating on the beach	NA	NA	NA	NA
Solitary sandpiper *Tringa solitaria*	▪ Wetlands: freshwater lakes and ponds in areas of muskeg bogs and spruce	▪ Water ▪ Wetlands	▪ Wetlands: marshes, rice fields, muddy edges of larger lakes and rivers	▪ Water and wetlands: marshes, shoreline	Late May through mid-July	▪ Migration	▪ Habitat loss and degradation	1.3	NA	NA	NA
Song sparrow *Melospiza melodia*	▪ Riparian ▪ Shrub/shrub steppe ▪ Pinyon-juniper/oak woodlands adjacent to freshwater; prefers dense cover	▪ Riparian ▪ Shrub/shrub steppe ▪ Pinyon-juniper/oak woodlands	▪ Partial migrant	▪ Partial migrant	Late March through early August	▪ Year-round	▪ Habitat degradation: extensive grazing removes wet thickets, water diversion, and conversion to agriculture	-0.7	0.4	0.0	0.5
Swainson's hawk *Buteo swainsoni*	▪ Grasslands, agriculture: nests built in scattered trees	▪ Grasslands ▪ Agriculture	▪ Grasslands ▪ Agriculture	▪ Grasslands ▪ Agriculture	April through mid-July	▪ Nesting	▪ Pesticide poisoning in South America ▪ Collisions with structures and vehicles ▪ Degradation of habitat in wintering range	2.0	0.5	0.7	2.4
Thayer's gull *Larus thayeri*	▪ Arctic rocky cliffs	▪ Water	▪ Marine coasts	▪ Water	Early May through August	▪ Migration	▪ Shooting and trapping. ▪ Water quality: oil spills	NA	NA	NA	NA
Upland sandpiper *Bartramia longicauda*	▪ Grasslands: obligate grassland species	▪ Grasslands ▪ Agriculture	▪ Pampas Grasslands: South America	▪ Grasslands ▪ Agriculture: cultivated fields, mowed hayfields, and pastures	May and June	▪ Nesting ▪ Migration	▪ Habitat degradation and loss: conversion of grasslands ▪ Disturbance at nest and roost sites: primarily cattle	-0.2	6.1	-4.4	NA
Veery *Catharus fuscescens*	▪ Riparian ▪ Aspen	▪ Riparian ▪ Aspen	▪ Riparian ▪ Aspen	▪ Riparian ▪ Aspen	Mid-May through mid-July	▪ Nesting ▪ Migration	▪ Habitat degradation and fragmentation: increased cowbird populations, destruction of forested habitats for agriculture	-2.2	-0.9	-5.3	NA
Virginia rail *Rallus limicola*	▪ Freshwater wetlands: shallow water, emergent cover with high invertebrate abundance	▪ Wetlands	▪ Wetlands	▪ Wetlands: flooded annual grasses or forbs with shallow water	Early April through July	▪ Nesting	▪ Pesticides and other environmental contaminants: bioaccumulation ▪ Collisions with structures and vehicles: frequently, utility wire ▪ Habitat degradation: flooding and changing water levels	-0.3	1.3	2.1	3.5

TABLE J-7
NATURAL HISTORY AND THREATS FOR MIGRATORY BIRD SPECIES IDENTIFIED AS BIRD SPECIES OF CONCERN IN THE PROJECT AREA

Common Name *Scientific Name*	Primary Nesting Habitat	Primary Foraging Habitat	Primary Wintering Habitat	Primary Migration Habitat	Nesting Dates	Activity in Project Area	Identified Threats	Breeding Bird Survey Trends[1] (percent population change per year)			
								Western Region	Wyoming	Colorado	Utah
Virginia's warbler *Oreothlypis virginiae*	▪ Pinyon-juniper and oak woodlands	▪ Pinyon-juniper and oak woodlands	▪ Thornscrub and tropical deciduous woodlands.	▪ Riparian ▪ Ponderosa pine	Early May through July	▪ Nesting	▪ Habitat degradation: limited available habitat ▪ Disturbance at nest and roost sites: highly vulnerable	-1.4	NA	-1.0	1.5
Warbling vireo *Vireo gilvus*	▪ Riparian: mixed-deciduous woodlands	▪ Riparian: mixed-deciduous woodlands	▪ Riparian gallery forest ▪ Mangrove ▪ Agriculture	▪ Riparian: woodlands, thickets ▪ Desertscrub adjacent to water	May through early August	▪ Nesting	▪ Pesticides and other environmental contaminants ▪ Collisions with structures: television towers ▪ Habitat degradation and loss: streamside use by humans, and encroachment of white fir after logging	1.5	1.1	0.7	2.0
Western scrub-jay *Aphelocoma californica*	▪ Pinyon-juniper ▪ Riparian: thickets ▪ Shrub/shrub steppe	▪ Pinyon-juniper ▪ Riparian ▪ Shrub/shrub steppe	▪ Non-migratory	▪ Non-migratory	Late March through June	▪ Year-round	▪ No known human activity impacts	0.0	NA	-0.5	2.7
Whimbrel: North American population *Numenius phaeopus*	▪ Subarctic and arctic tundra	▪ Wetlands	▪ Wetlands: South America, also Florida and Galapagos	▪ Water: ponds, lakes ▪ Wetlands: marshes, and shorelines	Late May through mid-August	▪ Migration	▪ Wetland habitat degradation and loss ▪ Disturbance at nest and roost sites ▪ Pesticides and other environmental contaminants	NA	NA	NA	NA
White-faced ibis *Plegadis chihi*	▪ Wetlands: marshes	▪ Wetlands	▪ Coastal wetlands	▪ Wetlands ▪ Agriculture	Mid-May through July	▪ Nesting ▪ Migration	▪ Wetland habitat degradation and loss ▪ Pesticides and other environmental contaminants ▪ Disturbance at nest and roost sites	8.3	NA	7.0	0.0
White-throated swift *Aeronautes saxatalis*	▪ Barren/sparsely vegetated: crevices, cliffs, canyon walls, pinnacles, and large rocks ▪ Also man-made structures	▪ Open air	▪ Barren/sparsely vegetated	▪ Barren/sparsely vegetated	April through July	▪ Nesting	▪ Habitat degradation and loss: mining and destruction of cliffs, maintenance of older buildings ▪ Pesticide and other environmental contaminants	-1.5	-4.2	-0.4	0.3
White-winged scoter *Melanitta fusca*	▪ Wetlands: on large lakes.	▪ Water	▪ Coastal estuaries	▪ Water	June through mid-August	▪ Migration	▪ Pesticides and other environmental contaminants ▪ Habitat loss and degradation	NA	NA	NA	NA
Willet *Tringa semipalmata*	▪ Wetlands: marshes, or inundated grasslands	▪ Wetlands	▪ Californian coastal wetlands	▪ Water and wetlands.	May through July	▪ Nesting	▪ Pesticide and other environmental contaminants ▪ Collisions with structures and vehicles ▪ Habitat loss and degradation: conversion of grassland habitats	0.0	1.0	NA	-1.0

TABLE J-7
NATURAL HISTORY AND THREATS FOR MIGRATORY BIRD SPECIES IDENTIFIED AS BIRD SPECIES OF CONCERN IN THE PROJECT AREA

Common Name *Scientific Name*	Primary Nesting Habitat	Primary Foraging Habitat	Primary Wintering Habitat	Primary Migration Habitat	Nesting Dates	Activity in Project Area	Identified Threats	Breeding Bird Survey Trends[1] (percent population change per year)			
								Western Region	Wyoming	Colorado	Utah
Williamson's sapsucker *Sphyrapicus thyroideus*	▪ Montane forest	▪ Montane forest	▪ Pinyon-juniper	▪ Pinyon-juniper	May through July	▪ Nesting	▪ Habitat degradation: fire suppression ▪ Pesticide and other environmental contaminants: mountain pine beetle treatment	0.4	3.7	1.2	1.0
Willow flycatcher *Empidonax traillii*	▪ Riparian: woodlands and thickets including willow, hawthorn, water birch, and alder	▪ Riparian: woodlands and thickets including willow, hawthorn, water birch, and alder	▪ Riparian: woodlands and thickets including willow, hawthorn, water birch, and alder	▪ Riparian: woodlands and thickets including willow, hawthorn, water birch, and alder	June through August	▪ Nesting	▪ Habitat degradation and loss: overgrazing, water-flow alterations ▪ Collisions with structures: night migrants	-2.0	-1.2	-2.6	-0.6
Wilson's warbler *Cardellina pusilla*	▪ Riparian	▪ Riparian	▪ Tropical forest: Mexico and Central America	▪ Deciduous shrub habitats.	June and July	▪ Nesting	▪ Pesticides and other environmental contaminants ▪ Collisions with structures: television towers ▪ Habitat degradation: intensive grazing ▪ Disturbance at nest sites	-2.2	-1.5	-3.1	4.5
Yellow-billed cuckoo *Coccyzus americanus*	▪ Riparian: low, dense, scrubby vegetation.	▪ Riparian: low, dense, scrubby vegetation.	▪ Riparian: Central and South America	▪ Coastal scrubland	Early June through early September	▪ Nesting	▪ Habitat degradation and loss: conversion to agriculture, urbanization ▪ Collisions with structures: nocturnal migration ▪ Pesticides and other environmental contaminants	-2.1	NA	1.7	NA
Yellow-crowned night heron *Nyctanassa violacea*	▪ Wetlands	▪ Water ▪ Wetlands	▪ Water ▪ Wetlands	▪ Water ▪ Wetlands	Late March through mid-July	▪ Migration: juvenile dispersal	▪ Illegal harvest. ▪ Degradation of habitat	NA	NA	NA	NA

NOTES:
[1]Zero (0) = no change, negative = population decline, positive = population increase
NA = Not applicable

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J.6 Special Status Species Accounts

Special status species include plants or animals listed as threatened, endangered, or candidates for listing under the ESA as well as species assigned sensitive status by the USFS, BLM or the three states crossed by the Project.

Tables J-8 and J-10 include all of the special status plant and special status wildlife species carried forward for detailed analysis in the EIS. The known distribution, habitat requirements, and recent and historical locations for those species carried forward for analysis are detailed in the summaries below. The species accounts were compiled through review of scientific literature, agency reports, spatial data available from natural heritage programs, and collaboration with agency resource specialists. Species accounts for special status plants and wildlife that were not carried forward for analysis have not been included as these species will not be affected by the Project.

J.6.1 Special Status Plants

J.6.1.1 Federally Listed Threatened, Endangered, and Candidate Plant Species

Barneby Ridge-cress (*Lepidium barnebyanum*) – FWS: Endangered

Regulatory Status

Barneby ridge-cress was first proposed for listing along with 1,700 other vascular plants on June 16, 1976 (41 *Federal Register* [FR] 24523). On December 10, 1979, the FWS withdrew the proposal because it was not finalized within the 2-year time limit from the initial publication in the *Federal Register* (44 FR 70796). Beginning on October 13, 1983, and each successive year, the FWS made 1-year findings that the petition to list the species was warranted but precluded by other listing actions of higher priority. The final rule to list the species as endangered was published on September 28, 1990 (55 FR 39860). No critical habitat for Barneby ridge-cress has been designated to protect the species from potential vandalism that could occur if the specific geographical area of distribution was widely known. The FWS initiated a 5-year review on October 6, 2008 (73 FR 58261) and published their findings of the 5-year review in July 2011 (FWS 2011a).

The recovery plan for Barneby ridge-cress was published in 1993. The goals of the plan are to prevent the extinction and serious habitat degradation of the species and to downlist Barneby ridge-cress to threatened status. The species eventual recovery and delisting is uncertain. Downlisting criteria described in the plan includes: (1) existing stands and population numbers are maintained; (2) formal management designations for each of the three existing populations are established; (3) a total population of 20,000 individuals is documented for 5 years; and (4) five separate stands of at least 2,000 individuals are maintained (FWS 1993).

TABLE J-8
SPECIAL STATUS PLANT SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species			U.S. Forest Service Sensitive Species			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	
Argyle Canyon phacelia	*Phacelia argylensis*				✓				The species occurs within 5 miles of alternative routes in the Uinta Basin (Bureau of Land Management [BLM] 2012b).
Barneby's cat's eye	*Cryptantha barnebyi*				✓				The species occurs within 1 mile of Link U241 (BLM 2012b).
Barneby ridge-cress	*Lepidium barnebyanum*	E							The species is known to occur in the Project area. The species is only known from a single population located on less than 500 acres. This population is approximately 3 miles from Links U402, U430, and U431 (U.S. Fish and Wildlife Service [FWS] 2011a).
Beaver Rim phlox	*Phlox pungens*		✓						The species is not known to occur in the Project area (Wyoming Natural Diversity Database [WYNDD] 2011). Suitable habitat for the species was modeled in the Project area (Fertig and Thurston 2003).
Bolander's camissonia	*Camissonia bolanderi*				✓				The species is known to occur in the Project area. Heritage data included occurrences of the species within 1 mile of Link U730 at Calf Mesa (Utah Natural Heritage Program [UNHP] 2012).
Caespitose cat's-eye	*Cryptantha caespitosa*			✓					The species is known to occur in the Project area. Heritage data included approximately 20 occurrences of the species within 5 miles of alternative routes in Utah and (Colorado Natural Heritage Program [CNHP] 2011; UNHP 2012).
Canyon sweet-vetch	*Hedysarum occidentale* var. *canone*						SS		The species is known to occur in the Project area in Carbon, Emery and Duchesne counties in Utah. Heritage data included one occurrence of the species near Tabiona approximately 7.5 miles from Link U420 (UNHP 2012).
Carrington daisy	*Erigeron carringtoniae*						SS		The species is known to occur in the Project area. Heritage data included thousands of individual occurrences of the species near Pine Spring in the East Mountains, which is approximately 0.5 mile from Link U630 (UNHP 2012).

TABLE J-8
SPECIAL STATUS PLANT SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species			U.S. Forest Service Sensitive Species			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	
Cedar Rim thistle	*Cirsium aridum*		✓						Suitable habitat was modeled near or in the Project area (Fertig and Thurston 2003) however, there are no known occurrences of the species in the Project area (WYNDD 2011). Based on discussions with agency specialists, it was determined that potentially suitable habitat for the species may or may not be present in the Project area (Blomquist 2012; Glennon 2012). Therefore, the species was carried forward for detailed analysis.
Cisco milkvetch	*Astragalus sabulosus* var. *sabulosus*	P			✓				The species is known to occur in the Project area. Heritage data included two occurrences of the species within 2.5 miles of Link U490 near the crossing of Interstate 70 and Nash Wash southwest of Cisco, Utah (UNHP 2012).
Clay phacelia	*Phacelia argillacea*	E							Individuals, reintroduction sites, and modeled habitat are known in proximity to Links U539 and U530 (UNHP 2012).
Clay reed-mustard	*Schoenocrambe argillacea*	T							Individuals and habitat occur where Link U400 crosses the Green River (Franklin 1992).
Creutzfeldt's cat's-eye	*Cryptantha creutzfeldtii*				✓		SS		The species is known to occur in the Project area near Huntington and Kenilworth, Utah (Links U590, U630, and U765). The species also occurs northwest of Price, Utah (within 5 miles of Links U548, U595, U546, and U522) and near Soldier Creek (Links U522, U523, and U492) (CNHP 2011; UNHP 2012).
Debris milkvetch	*Astragalus detritalis*			✓					The species is known to occur in the Project area in Utah and Colorado. Several occurrences of the species have been documented in the past 30 years (BLM 2011b; CNHP 2011; UNHP 2012; WYNDD 2011).
Dense twinpod	*Physaria condensata*		✓						The species is not known to occur in the Project area (WYNDD 2011). Suitable habitat for the species was modeled in the Project area (Fertig and Thurston 2003).
Deseret milkvetch	*Astragalus desereticus*	T							Individuals and habitat are known in proximity to Link U621 (CNHP 2011; UNHP 2012; WYNDD 2011).

TABLE J-8
SPECIAL STATUS PLANT SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species			U.S. Forest Service Sensitive Species			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	
Dolores River skeleton-plant	*Lygodesmia doloresensis*			✓	✓				The species is known to occur in the Project area. Heritage data included one recent occurrence of the species within 2 miles of alternative routes (CNHP 2011; UNHP 2012).
Duchesne milkvetch	*Astragalus duchesnensis*			✓					The species is known to occur in the Project area in proximity to alternative routes in Colorado (BLM 2011b, CNHP 2011).
Ephedra buckwheat	*Eriogonum ephedroides*			✓					The species is known to occur in the Project area. Heritage data included occurrences of the species near Link U240. The species also occurs north of Nine Mile Canyon (within 2.5 miles of Link U400) and in Dragon Canyon (within 3.2 miles of Link C196) (UNHP 2012).
Ferron's milkvetch	*Astragalus musiniensis*			✓					The species is known to occur in the Project area. Heritage data included occurrences of the species in Colorado and Utah (CNHP 2011; UNHP 2012).
Gibbens' beardtongue	*Penstemon gibbensii*		✓	✓	✓				The species is known to occur in the Project area in Wyoming. Another population occurs in Browns Park National Wildlife Refuge, near the Colorado-Utah border. Suitable habitat for the species occurs near alternative routes (CNHP 2011; UNHP 2012; WYNDD 2011).
Goodrich's blazingstar	*Mentzelia goodrichii*				✓	SS			The species is known to occur in the Project area. Heritage data included occurrences of the species in the vicinity of Argyle Canyon near Links U431 and U401 (UNHP 2012, WYNDD 2011).
Goodrich's columbine	*Aquilegia scopulorum* var. *goodrichii*				✓				The species occurs within 1 mile of Link U431 (BLM 2012b).
Graham's beardtongue	*Penstemon grahamii*			✓	✓				The species is known to occur in the Project area in Colorado and Utah. Heritage data included several occurrences of the species within 5 miles of alternative routes (CNHP 2011; UNHP 2012; WYNDD 2011).
Graham's cat's-eye	*Cryptantha grahamii*				✓				The species occurs within 5 miles of alternative routes in the Uinta Basin (BLM 2012b).

TABLE J-8
SPECIAL STATUS PLANT SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species			U.S. Forest Service Sensitive Species			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	
Grand Junction suncup	*Camissonia eastwoodiae*			✓					The species is known to occur in the Project area. Heritage data included three populations within 2.5 miles of Link C270 (CNHP 2011).
Green River greenthread	*Thelesperma caespitosum*		✓		✓	SS			The species is known to occur in the Project area. Heritage and BLM data included three occurrences of the species within 1 mile of Links U404 and U401 (BLM 2012b; UNHP 2012; WYNDD 2011).
Hairy Townsend daisy	*Townsendia strigosa* var. *prolixa*				✓				The species occurs within 5 miles of alternative routes in the Uinta Basin (BLM 2012b).
Hamilton's milkvetch	*Astragalus hamiltonii*				✓				The species was recorded along Link U322 in 1981 (UNHP 2012). BLM-mapped potential habitat for the species is crossed by Links U410, U391, and U390 (BLM 2012b).
Horseshoe milkvetch	*Astragalus equisolensis*			✓	✓				The species is known to occur in the Project area. Heritage data included occurrences of the species near Green River, Utah (Links U310, U321, U322, U380 and U390) (BLM 2012b; CNHP 2011; UNHP 2012). BLM-mapped potential habitat for the species is crossed by Links U390 and U310 (BLM 2012b).
Huber’s pepperwort	*Lepidium huberi*				✓				The species occurs within 5 miles of alternative routes in the Uinta Basin (BLM 2012b).
Jones' bluestar	*Amsonia jonesii*			✓					The species is known to occur in the Project area. Heritage data included occurrences of the species 1.5 miles from Link U390 (UNHP 2012). Heritage data included several other occurrences within 3 miles of Link C270 (CNHP 2011).

TABLE J-8
SPECIAL STATUS PLANT SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species			U.S. Forest Service Sensitive Species			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	
Jones' cycladenia	*Cycladenia humilis* var. *jonesii*	T							The species has not been recorded north of Interstate 80 in Utah. Heritage data did not include any occurrences of the species within 10 miles of alternative routes (CNHP 2011; UNHP 2012; WYNDD 2011). The BLM Price Field Office conducted a study in 2012 to document distribution, identify habitat requirements, and model the extent of suitable habitat of the species (Sansom and Elliot 2012). The results of the study indicated that potentially suitable habitat for the species could be present along Links U727, U728, U729, U730, U732, U733 and U734 in Emery County, Utah.
Laramie false sagebrush	*Sphaeromeria simplex*		✓						Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011). Suitable habitat for the species was modeled in the Project area (Fertig and Thurston 2003). Based on discussions with agency specialists, the species was carried forward for detailed analysis (Blomquist 2012).
Large-fruited bladderpod	*Lesquerella macrocarpa*		✓						The species is not known to occur in the Project area (WYNDD 2011). Suitable habitat for the species was modeled in the Project area (Fertig and Thurston 2003).
Ligulate feverfew	*Parthenium ligulatum*			✓					The species is known to occur in the Project area. Heritage data included occurrences of the species near Links C220 and U242 (CNHP 2011; UNHP 2012).
Meadow pussytoes	*Antennaria arcuata*		✓						The species is not known to occur in the Project area (WYNDD 2011). Suitable habitat for the species was modeled in the Project area (Fertig and Thurston 2003).
Narrowleaf evening primrose	*Oenothera acutissima*			✓					The species is known to occur in the Project area. Heritage data included occurrences of the species near Link U30 (CNHP 2011; UNHP 2012).
Narrow-stem gilia	*Gilia stenothyrsa*			✓					The species is known to occur within 1 mile of alternative routes near Links C186 and C196 in Colorado (BLM 2011a; CNHP 2011).

TABLE J-8
SPECIAL STATUS PLANT SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species			U.S. Forest Service Sensitive Species			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	
Ownbey's thistle	*Cirsium ownbeyi*		✓						The species is known to occur near the alternative routes in Utah and Colorado (BLM 2011a; CNHP 2011; UNHP 2012). Suitable habitat for the species is modeled in the Project area in Wyoming (Fertig and Thurston 2003).
Pariette cactus	*Sclerocactus brevispinus*	T							The species is known to occur in the Project area. The entire population of the species is within 5 miles of Links U400 and U402. Numerous occurrences of the species are within 1 mile of Link U402. (UNHP 2012). According to the FWS a single population that occupies approximately 72,000 acres in the Pariette Draw encompasses the entire species (FWS 2011b).
Persistent-sepal yellowcress	*Rorippa calycina*		✓						The species is known to occur in the Project area. Heritage data included occurrences of the species along Link W30 (WYNDD 2011). Suitable habitat for the species was modeled in the Project area (Fertig and Thurston 2003).
Piceance bladderpod	*Lesquerella parviflora*			✓					The species is known to occur in the Project area. Heritage data included occurrences of the species within 20 miles of alternative routes (CNHP 2011; UNHP 2012; WYNDD 2011).
Psoralea globemallow (Head sphaeromeria)	*Sphaeralcea psoraloides*				✓				The species is known to occur in the Project area. Heritage data included occurrences of the species along Link U730, west of the town of Green River. Data from the BLM Price Field Office includes two populations of 15,000 individual plants. Heritage data did not include any other occurrences of the species within 35 miles of alternative routes (UNHP 2012).
Racemose milkvetch	*Astragalus racemosus* var. *treleasei*		✓						The species is not known to occur in the Project area (WYNDD 2011). Potentially suitable habitat for the species was modeled in the Project area (Fertig and Thurston 2003).
Rock hymenoxys	*Hymenoxys lapidicola*				✓				The species occurs within 5 miles of alternative routes in the Uinta Basin (BLM 2012b).

TABLE J-8
SPECIAL STATUS PLANT SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species			U.S. Forest Service Sensitive Species			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	
Rollins' cat's-eye	*Cryptantha rollinsii*			✓					The species is known to occur in the Project area. Heritage data included several occurrences of the species near alternative routes in Wyoming and Colorado (BLM 2011a; CNHP 2011; UNHP 2012; WYNDD 2011).
San Rafael cactus	*Pediocactus despainii*	E							The species is known to occur in the Project area. Heritage data included one small population near Furniture Draw, within 0.3 mile of Link U733. Other populations are within 5 miles of Link U730, U732, U733, and U734 (UNHP 2012).
Shrubby reed-mustard	*Schoenocrambe suffrutescens*	E							The species is known to occur in the Project area. FWS data included one occurrence of the species within 1 mile of Link U401 in the vicinity of Badlands Cliff/Wrinkles Road (FWS 2010). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Spanish bayonet	*Yucca harrimaniae* var. *sterilis*				✓				The species is known to occur in the Project area. Heritage data included seven known occurrences of the species; however, only one occurrence is less than 30 years old (2006) and is within 5 miles of Links U400 and U402 (UNHP 2012).
Stemless beardtongue	*Penstemon acaulis* var. *acaulis*		✓			SS			The species is not known to occur within 20 miles of alternative routes in Utah or Wyoming (UNHP 2012; WYNDD 2011) but does occur in proximity to alternative routes in Colorado (BLM 2011a). Potentially suitable habitat for the species was modeled in the Project area in Wyoming (Fertig and Thurston 2003).
Thompson's talinum	*Talinum thompsonii*				✓				The species is known to occur in the Project area. Heritage data included occurrences of the species within 5 miles of Links U732, U733, and U734 along Cedar Mountain. Heritage data indicates the entire population may be within 5 miles of alternative routes (UNHP 2012).

TABLE J-8
SPECIAL STATUS PLANT SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species			U.S. Forest Service Sensitive Species			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	
Twisted buckwheat	*Eriogonum contortum*			✓					The species is known to occur in the Project area. Heritage data included occurrences of the species along Link U490 with additional occurrences near alternative routes in Utah and Colorado (CNHP 2011; UNHP 2012; WYNDD 2011).
Uinta Basin hookless cactus	*Sclerocactus wetlandicus*	T							The species is known to occur in the Project area. Heritage data included several occurrences of the species near alternative routes and more than 100 occurrences of the species in the Project area. Several individuals are located within 0.5 mile alternative route centerlines (CNHP 2011; UNHP 2012; WYNDD 2011).
Uinta Basin spring-parsley	*Cymopterus duchesnensis*			✓					The species is known to occur in the Project area. Heritage data included occurrences of the species but most of them were more than 25 years old. None of the occurrences were within 1 mile of the alternative routes (CNHP 2011).
Untermann's daisy	*Erigeron untermannii*				✓	SS			The species is known to occur in the Project area. Heritage data included occurrences of two large populations located on the Ashley National Forest along Links U431 and U432 (CNHP 2011; UNHP 2012).
Ute ladies'-tresses	*Spiranthes diluvialis*	T							The species is known to occur in the Project area. Heritage data included occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011). Potentially suitable habitat is found throughout the Project area.
Western prairie fringed orchid	*Platanthera praeclara*	T							The species is found along the Platte River system and may be affected by water use in the Platte River watershed. The species is not known to occur near the Project area (CNHP 2011; UNHP 2012; WYNDD 2011) but could be indirectly affected by withdrawals of water from the Platte River basin for construction of the Project. Habitat for the species is not likely to be directly affected by the Project.

TABLE J-8
SPECIAL STATUS PLANT SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species			U.S. Forest Service Sensitive Species			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	
Wheeler's angelica	*Angelica wheeleri*							SS	The species is known to occur in the Project area. Heritage data included two occurrences at the junction of Salt Creek Canyon and McCune Canyon on the Uinta National Forest, which is approximately 5 miles from Link U650. Suitable habitat and populations of Wheeler's angelica are also known in Tie Fork and in the right and left forks of Indian Creek.
White River beardtongue	*Penstemon scariosus* var. *albifluvis*			✓	✓				The species is known to occur in Uintah County, Utah, and western Rio Blanco County, Colorado, near the White River to the vicinity of Evacuation Creek and in the vicinity of Willow Creek (FWS 2011c). Populations located along the White River around the Utah-Colorado border are near Links U240 and C220.

SOURCE: Nomenclature follows U.S. Fish and Wildlife Service 2012c for federally listed Threatened and Endangered species and NatureServe Explorer NatureServe 2012 for all others.
NOTES:

Endangered Species Act
- C = Candidate
- E = Endangered
- P = Petitioned
- T = Threatened

Bureau of Land Management
- ✓ = Sensitive species present in district

U.S. Forest Service
- SS = Sensitive Species with known habitat on Forest

TABLE J-9
SPECIAL STATUS PLANT SPECIES NOT CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species			U.S. Forest Service Sensitive Species			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	
Abajo daisy	*Erigeron abajoensis*						SS		The species is not known to occur in the Project area (Colorado Natural Heritage Program [CNHP] 2011; Utah Natural Heritage Program [UNHP] 2012).
Abajo Peak draba	*Draba abajoensis*						SS		The species is not known to occur in the Project area (CNHP 2011; UNHP 2012).
Ackerman's green gentian	*Frasera ackermaniae*				✓				The species is not known to occur in the Project area (UNHP 2012).
Alcove rock-daisy	*Perityle specuicola*				✓				The species is not known to occur within 10 miles of alternative routes (UNHP 2012).
Angell's cinquefoil	*Potentilla cottamii*				✓				The species is not known to occur in the Project area (UNHP 2012).
Arapien stickleaf	*Mentzelia argillosa*				✓				The species is not known to occur in the Project area (UNHP 2012).
Arctic poppy	*Papaver radicatum*					SS			The species is not known to occur in the Project area (UNHP 2012; Wyoming Natural Diversity Database [WYNDD] 2011).
Arizona willow	*Salix arizonica*						SS		The species is not known to occur in the Project area (CNHP 2011; UNHP 2012).
Aromatic Indian breadroot	*Pediomelum aromaticum*			✓					The species is not known to occur within 15 miles of alternative routes (CNHP 2011).
Atwood's columbine	*Aquilegia atwoodii*				✓				The species is not known to occur in the Project area (UNHP 2012).
Barneby reed-mustard	*Schoenocrambe barnebyi*	E							The species is not known to occur in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Barneby woody aster	*Tonestus (=Aster) kingii* var. *barnebyana*							SS	The species is not known to occur in the Project area (UNHP 2012).
Bicknell milkvetch	*Astragalus consobrinus*								The species is not known to occur in the Project area (CNHP 2011; UNHP 2012).

TABLE J-9
SPECIAL STATUS PLANT SPECIES NOT CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species			U.S. Forest Service Sensitive Species			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	
Blowout penstemon	*Penstemon haydenii*	E							The species is not known to occur in the Project area. Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011). The Project is outside the U.S. Fish and Wildlife (FWS) range for the species.
Brownie ladyslipper	*Cypripedium fasciculatum*					SS			The species is not known to occur within 10 miles of alternative routes (CNHP 2011; UNHP 2012; WYNDD 2011).
Burke's draba	*Draba burkei*								The species is not known to occur in the Project area (UNHP 2012).
Cache beardtongue	*Penstemon compactus*								The species is not known to occur in the Project area (UNHP 2012).
Canyonlands lomatium	*Lomatium latilobum*			✓	✓		SS		The species is not known to occur within 5 miles of alternative routes (CNHP 2011; UNHP 2012).
Cathedral Bluff dwarf gentian	*Gentianella tortuosa*			✓					The species is not known to occur within 20 miles of alternative routes (CNHP 2011).
Cathedral Bluff meadow-rue	*Thalictrum heliophilum*			✓					The species is not known to occur within 9 miles of alternative routes (CNHP 2011).
Cedar Mountain Easter daisy	*Townsendia microcephala*		✓						The species is not known to occur in the Project area (WYNDD 2011).
Chatterley onion	*Allium geyeri* var. *chatterleyi*						SS		The species is not known to occur in the Project area (CNHP 2011; UNHP 2012).
Cisco milkvetch	*Astragalus sabulosus* var. *vehiculus*	P			✓				The species is not known to occur in the Project area (UNHP 2012).
Clay hill buckwheat	*Eriogonum viridulum*			✓					The species is not known to occur within 20 miles of alternative routes (CNHP 2011).
Colorado hookless cactus	*Sclerocactus glaucus*	T							The species was recorded within 2 miles of Link C270 (CNHP 2011). All other occurrences of the species are at least 15 miles from the alternative routes (CNHP 2011; UNHP 2012; WYNDD 2011). The occurrence within 2 miles of Link C270 is likely erroneous, and there are no verified occurrences within 25 miles of the alternative routes (Clayton 2012).

TABLE J-9
SPECIAL STATUS PLANT SPECIES NOT CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species			U.S. Forest Service Sensitive Species			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	
Cottam cinquefoil	*Potentilla cottamii*								The species is not known to occur in the Project area (UNHP 2012).
Cronquist daisy	*Erigeron cronquistii*								The species is not known to occur in the Project area (UNHP 2012).
Dainty moonwort	*Botrychium crenulatum*					SS		SS	The species is not known to occur in the Project area (UNHP 2012; WYNDD 2011).
DeBeque milkvetch	*Astragalus debequaeus*			✓					The species is not known to occur in the Project area (CNHP 2011).
DeBeque phacelia	*Phacelia submutica*	T							The species is not known to occur in the Project area (CNHP 2011).
Desolation Canyon columbine	*Aquilegia desolaticola*				✓				The species is not known to occur in the Project area (UNHP 2012).
Dudley Bluffs bladderpod	*Physaria congesta*	T							The species is not known to occur in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Dudley Bluffs twinpod	*Physaria obcordata*	T							The species is not known to occur in the Project area (FWS 2011d).
Dune wildrye	*Elymus simplex* var. *luxurians*		✓						The species is not known to occur in the Project area (WYNDD 2011).
Eastwood's monkeyflower	*Mimulus eastwoodiae*			✓					The species is not known to occur within 20 miles of alternative routes (CNHP 2011).
Entrada skeletonplant	*Lygodesmia entrada*				✓				The species is not known to occur within 5 miles of alternative routes (UNHP 2012).
Fisher milkvetch	*Astragalus piscator*			✓					The species is not known to occur in the Project area (CNHP 2011).
Flat-top buckwheat	*Eriogonum corymbosum* var. *smithii*				✓				The species is not known to occur in the Project area (UNHP 2012).
Garrett bladderpod	*Lesquerella garrettii*							SS	The species is not known to occur in the Project area (UNHP 2012).

TABLE J-9
SPECIAL STATUS PLANT SPECIES NOT CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species			U.S. Forest Service Sensitive Species			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	
Garrett's fleabane	*Erigeron garrettii*							SS	The species is not known to occur in the Project area (UNHP 2012).
Giant fourwing saltbush	*Atriplex canescens* var. *gigantea*				✓				The species is not known to occur in the Project area (UNHP 2012).
Goodrich cleomella	*Cleomella palmeriana* var. *goodrichii*				✓				The species is not known to occur in the Project area (UNHP 2012).
Goodrich's penstemon	*Penstemon goodrichii*				✓				The species was recorded approximately 4 miles from Link U410 in 1979 (UNHP 2012). No other occurrences of the species have been recorded within 8 miles of alternative routes in the past 30 years (CNHP 2011; UNHP 2012; WYNDD 2011).
Graham columbine	*Aquilegia grahamii*					SS			The species is not known to occur in the Project area (UNHP 2012; WYNDD 2011).
Grand Junction milkvetch	*Astragalus linifolius*			✓					The species is not known to occur in the Project area (CNHP 2011).
Gypsum Valley cat's-eye	*Cryptantha gypsophila*			✓					The species is not known to occur within 35 miles of alternative routes (CNHP 2011).
Heliotrope milkvetch	*Astragalus montii*	T							The species is not known to occur within 25 miles of alternative routes (CNHP 2011; UNHP 2012; WYNDD 2011).
Horse Canyon stickleaf	*Mentzelia multicaulis* var. *librina*				✓				The species is not known to occur within 5 miles of alternative routes (UNHP 2012).
Isely's milkvetch	*Astragalus iselyi*	P			✓		SS		The species is not known to occur in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Jane's globemallow	*Sphaeralcea janeae*				✓				The species is not known to occur within 30 miles of alternative routes (UNHP 2012).
Jones' indigo-bush	*Psorothamnus polydenius* var. *jonesii*				✓				The species is not known to occur in the Project area (UNHP 2012).
Jones' Townsend daisy	*Townsendia jonesii* var. *lutea*				✓				The species is not known to occur in the Project area (UNHP 2012).

TABLE J-9
SPECIAL STATUS PLANT SPECIES NOT CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species			U.S. Forest Service Sensitive Species			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	
Kachina daisy	*Erigeron kachinensis*			✓			SS		The species is not known to occur in the Project area (CNHP 2011; UNHP 2012).
Laramie columbine	*Aquilegia laramiensis*		✓						The species is not known to occur in the Project area (WYNDD 2011).
LaSal daisy	*Erigeron mancus*						SS		The species is not known to occur in the Project area (CNHP 2011; UNHP 2012).
Last Chance townsendia	*Townsendia aprica*	T							The species is not known to occur in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Lesser yellow lady's slipper	*Cypripedium parviflorum (Cypripedium calceolus* var. *parviflorum)*								The species is not known to occur within 20 miles of alternative routes (UNHP 2012).
Limber pine	*Pinus flexilis*		✓						The species is not known to occur in the Project area (WYNDD 2011).
Link Trail columbine	*Aquilegia flavescens* var. *rubicunda*						SS		The species was recorded 4.75 miles from Link U630 in 1972. No other occurrences of the species have been recorded in the Project area (CNHP 2011; UNHP 2012).
Logan buckwheat	*Eriogonum loganum (E. brevicaule* var. *loganum)*								The species is not known to occur in the Project area (UNHP 2012).
Maguire campion	*Silene petersonii*						SS		The species is not known to occur within 10 miles of alternative routes in the past 30 years (CNHP 2011; UNHP 2012).
Maguire draba	*Draba maguirei*								The species is not known to occur in the Project area (UNHP 2012).
Maguire's daisy	*Erigeron maguirei*				✓				The species is not known to occur within 15 miles of alternative routes within the past 30 years (UNHP 2012).
Meadow milkvetch	*Astragalus diversifolius*		✓						The species is not known to occur in the Project area (WYNDD 2011).

TABLE J-9
SPECIAL STATUS PLANT SPECIES NOT CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species			U.S. Forest Service Sensitive Species			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	
Musinea groundsel	*Senecio musiniensis*						SS		The species is not known to occur in the Project area (CNHP 2011; UNHP 2012).
Mussentuchit gilia	*Alicielia tenuis*				✓				The species is not known to occur in the Project area (UNHP 2012).
Naturita milkvetch	*Astragalus naturitensis*			✓					The species is not known to occur in the Project area (CNHP 2011).
Navajo sedge	*Carex specuicola*	T							The species is not known to occur in the Project area (UNHP 2012).
Neese narrowleaf penstemon	*Penstemon angustifolius* var. *dulcis*				✓				The species is not known to occur within 5 miles of alternative routes (UNHP 2012).
Osterhout's cryptantha	*Cryptantha osterhoutii (Oreocarya osterhoutii)*			✓					The species is not known to occur in the Project area (CNHP 2011).
Parachute beardtongue	*Penstemon debilis*	T							The species is not known to occur in the Project area (CNHP 2011).
Park rockcress	*Arabis vivariensis*				✓				The species is not known to occur within 5 miles of alternative routes (UNHP 2012).
Peabody milkvetch	*Astragalus pubentissimus* var. *peabodianus*				✓				The species is not known to occur in the Project area (UNHP 2012).
Petiolate wormwood	*Artemisia campestris* ssp. *borealis* var. *petiolata*					SS			The species is not known to occur in the Project area (UNHP 2012; WYNDD 2011).
Pinnate spring-parsley	*Cymopterus beckii*						SS		The species is not known to occur in the Project area (UNHP 2012; CNHP 2011).
Precocious milkvetch	*Astragalus proimanthus*		✓						The species is not known to occur in the Project area (WYNDD 2011).

TABLE J-9
SPECIAL STATUS PLANT SPECIES NOT CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species			U.S. Forest Service Sensitive Species			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	
Roan Cliffs blazingstar	*Mentzelia rhizomata (Nuttallia argillosa, Mentzelia argillosa)*			✓					The species is not known to occur within 20 miles of alternative routes (CNHP 2011).
Rock tansy	*Sphaeromeria capitata*			✓					The species was recorded 4.8 mile from Link C61 in 1983. No other occurrences of the species have been recorded in the Project area (WYNDD 2011).
Rockcress draba	*Draba globosa (=D. densifolia* var. *apiculata)*					SS		SS	The species is not known to occur within 4 miles of alternative routes (UNHP 2012; WYNDD 2011).
San Rafael milkvetch	*Astragalus rafaelensis*			✓					The species is not known to occur within 5 miles of alternative routes in the past 30 years (CNHP 2011).
Santaquin draba	*Draba santaquinensis*							SS	The species is not known to occur in the Project area (UNHP 2012).
Shultz stickleaf	*Mentzelia shultziorum*				✓				The species is not known to occur within 15 miles of alternative routes (UNHP 2012).
Singlestem buckwheat	*Eriogonum acaule*			✓					The species is not known to occur in the Project area (CNHP 2011).
Slender moonwort	*Botrychium lineare*					SS			The species is not known to occur within 1.5 miles of alternative routes in the last 60 years (UNHP 2012; WYNDD 2011). Surveys at the site in 2003 failed to locate the species (Franklin 2005).
Small rockcress (Fremont County rockcress)	*Boechera (Arabis) pusilla*	C	✓						The species is not known to occur in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Smith violet	*Viola franksmithii*								The species is not known to occur in the Project area (UNHP 2012).
Sweet-flowered rock jasmine	*Androsace chamaejasme* ssp. *carinata*						SS		The species is not known to occur in the Project area (CNHP 2011; UNHP 2012).

TABLE J-9
SPECIAL STATUS PLANT SPECIES NOT CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species			U.S. Forest Service Sensitive Species			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	
Trotter's oreoxis	*Oreoxis trotteri*				✓				The species is not known to occur within 15 miles of alternative routes (UNHP 2012).
Tufted frasera	*Frasera paniculata*			✓					The species is not known to occur within 20 miles of alternative routes (CNHP 2011).
Uinta greenthread	*Thelesperma pubescens*		✓						The species is not known to occur in the Project area (UNHP 2012; WYNDD 2011).
Utah ivesia	*Ivesia utahensis*							SS	The species is not known to occur in the Project area (UNHP 2012).
Utah phacelia	*Phacelia utahensis*				✓				The species is not known to occur within approximately 4 miles of alternative routes in the past 80 years (UNHP 2012).
Utah spurge	*Euphorbia nephradenia*				✓				The species was recorded 3.3 miles from Link U730 in 1979. No other occurrences of the species have been recorded in the Project area (UNHP 2012).
Ward beardtongue	*Penstemon wardii*				✓				The species is not known to occur in the Project area (UNHP 2012).
Wasatch draba	*Draba brachystylis*								The species was recorded within 1 mile of Links U460 and U621 in 1901. No other recent occurrences of the species have been recorded in the Project area (UNHP 2012).
Wasatch fitweed	*Corydalis caseana spp. brachycarpa*							✓	The species is not known to occur in the Project area (UNHP 2012).
Wasatch jamesia	*Jamesia americana* var. *macrocalyx*							✓	The species is not known to occur within 15 miles of alternative routes (UNHP 2012).
Wasatch pepperwort	*Lepidium montanum* var. *alpinum*								The species is not known to occur in the Project area (UNHP 2012).
Wasatch shooting star	*Dodecatheon utahense*								The species is not known to occur in the Project area (UNHP 2012).
Winkler cactus	*Pediocactus winkleri*	T							The species is not known to occur in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Woodside buckwheat	*Eriogonum tumulosum*			✓					The species is not known to occur within 15 miles of alternative routes (CNHP 2011).

TABLE J-9
SPECIAL STATUS PLANT SPECIES NOT CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species			U.S. Forest Service Sensitive Species			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	
Wright fishhook cactus	*Sclerocactus wrightiae*	E							The species is outside of the range for the species identified by FWS in the 2008 status review of the species (FWS 2008a). The species is not known to occur within approximately 9 miles of alternative routes (CNHP 2011; UNHP 2012; WYNDD 2011).
Wyoming tansymustard	*Descurainia torulosa*		✓						The species is not known to occur in the Project area (WYNDD 2011). Suitable habitat for the species was modeled in the Project area (Fertig and Thurston 2003). However, based on discussions with agency specialists, it was determined that suitable habitat for the species is likely absent from the Project area (Glennon 2012). Therefore the species was not carried forward for detailed analysis.

SOURCE: Nomenclature follows FWS 2012e for federally listed Threatened and Endangered species and NatureServe Explorer NatureServe 2012 for all others.
NOTES:

Endangered Species Act
- C = Candidate
- E = Endangered
- P = Petitioned
- T = Threatened

Bureau of Land Management
- ✓ = Sensitive species present in district

U.S. Forest Service
- SS = Sensitive Species with known habitat on Forest

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
American beaver	*Castor canadensis*							MIS				Potentially suitable habitat for the species is present on the Uinta National Forest. The Project area is in the known range for the species (Smithsonian 2011). Heritage data did not include any occurrences of the species in the Project area (Colorado Natural Heritage Program [CNHP] 2011; Utah Natural Heritage Program [UNHP] 2012; Wyoming Natural Diversity Database [WYNDD] 2011).
American bittern	*Botaurus lentiginosus*								NSS3			The species is known to occur in the Project area. Heritage data included occurrences of the species at Stevies Lake, which is immediately west of Hanna, Wyoming, in 1985. No other occurrences of the species have been recorded in the Project area. Breeding Bird Survey and Christmas Bird Count report little, if any detection of the species in the Project area (Gough et al. 1998).

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
American marten	*Martes americana*								NSS4			Portions of the Project area are in known range for the species (Wyoming Game and Fish Department [WGFD] 2010a). Heritage data included occurrences of the species in Flat Canyon in Manti-La Sal National Forest in 1954. Other occurrences of the species were recorded during surveys in the 1990s in the Taylor Mountain area of Ashley National Forest, which is within approximately 20 miles from alternative routes (UNHP 2012; WYNDD 2011).
American pika	*Ochotona princeps*								NSSU			Portions of the Project area are in the species range in Utah and Wyoming (Smithsonian 2011). Heritage data included two occurrences of the species on the Manti-La Sal National Forest in the 1950s. Heritage data did not include any recent occurrences in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
American white pelican	*Pelecanus erythrorhynchs*			✓	SS						SPC	The species frequents lakes and reservoirs throughout the Project area during spring and fall migration. Heritage data included occurrences of the species in portions of the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Aquatic snails	Combined account								NSSU			Wyoming Heritage data for this group of species is lacking and little is known regarding distribution (WYNDD 2011). Aquatic snails potentially are present in portions of the Project area based on habitat requirements.
Ash-throated flycatcher	*Myiarchus cinerascens*								NSS3			The species is known to occur in the Project area. Heritage data included occurrences of the species along Red Creek at Richards Gap (Links W492, W493 and W520). Wyoming Heritage data included three other occurrences of the species in the Project area along the Little Snake River near the Wyoming-Colorado border (WYNDD 2011).
Baird's sparrow	*Ammodramus bairdii*		✓									The species is known to occur in the Project area. Transient individuals of the species may occur in portions of the Project area during seasonal migration. Heritage data included two occurrences of the species (essentially the same location) along Link W30 in 1981 (WYNDD 2011).
Bald eagle	*Haliaeetus leucocephalus*		✓	✓	SS	SS	SS	SS	NSS2	SC	SPC	The species is known to occur in the Project area. The species is wide-ranging and suitable habitat exists in Wyoming, Colorado and Utah.

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Big brown bat	*Eptesicus fuscus*								NSS4			The entire Project area is in the known range of the species (WGFD 2010a). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Big free-tailed bat	*Nyctinomops macrotis*				SS						SPC	The species is known to occur in the Project area. Summer range for the species occurs in the Project area in Utah (Bradley et al. 2006).
Bigmouth shiner	*Notropis dorsalis*								NSS4			Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011). The species was carried forward for analysis because it is known to inhabit the Platte River (U.S. Geological Survey [USGS] 2004).
Black rosy finch	*Leucosticte atrata*								NSSU			Portions of the Project area are in the known range for the species (WGFD 2010a). Heritage data included one occurrence of the species near Crescent Junction, Utah, in 1953 (Link U490). The species was observed at Buckhorn Wash, which is approximately 1 mile from Links U730 and U731. A flock was observed in 2002 at Bowrey Spring, which is approximately 1.5 miles from Link U90 (UNHP 2012). Heritage data did not include any occurrences of the species near the Project area in Wyoming (where the species is listed) (WYNDD 2011).

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Black swift	*Cypseloides niger*				SS						SPC	Portions of the Project area are in the known range for the species. Potentially suitable breeding habitat for the species may occur around Utah Lake, which is near the Project area (Birds of North America 2005). Heritage data included one occurrence of the species in Utah at Red Creek near Fruitland in 1963 (UNHP 2012).
Black tern	*Chlidonias niger*								NSS3			WGFD has mapped foraging and nesting colonies of the species in the Project area. Portions of the Project are in suspected breeding areas for the species (WGFD 2010a). Wyoming Heritage data included one occurrence of the species at Hogback Lake, which is within 1 mile of the Project area (WYNDD 2011). Utah Heritage data included occurrences of the species near the Project area at Pelican Lake and Ouray National Wildlife Refuge (UNHP 2012).
Black-crowned night-heron	*Nycticorax nycticorax*								NSS3			Portions of the Project area are within the known range for the species (Birds of North America 2005). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Black-footed ferret	*Mustella nigripes*	EX							NSS1	FE/SE	S-ESA	The species could potentially occur in the Project area. Portions of the Project area are located in or near white-tailed prairie dog colonies with known populations of black-footed ferrets (U.S. Fish and Wildlife Service [FWS] 2008b). Reintroduction management areas for this species are crossed by alternative routes in Wyoming, Colorado, and Utah.
Bluehead sucker	*Catostomus discobolus*		✓	✓	CA				NSS1		CS	The species is known to occur in the Project area. The species inhabits rivers crossed by alternative routes of the Project (CNHP 2011; UNHP 2012; WYNDD 2011).
Bobolink	*Dolichonyx oryzivorus*				SS				NSS4		SPC	Most of the Project area in Wyoming is within the known range for the species (WGFD 2010a). Portions of the Project area in Utah and Colorado have potentially suitable habitat for the species. Heritage data included three occurrences of the species within 2 miles of the Project area; one occurrence of the species in Utah near Vernal (1963); one occurrence in Powell Park along the White River, west of Meeker; and one occurrence within 1 mile of the Project area along the Yampa River east of Craig (CNHP 2011; UNHP 2012; WYNDD 2011).

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Bonneville cutthroat trout	*Oncorhynchus clarkii utah*				CA		SS	SS/ MIS	NSS3		CS	Alternative routes are near and/or cross known habitat for the species. Heritage data included occurrences of the species on the western end of Project in Utah (UNHP 2012).
Bonytail	*Gila elegans*	E				o	o	o		FE/SE	S-ESA	Alternative routes are near and/or cross known habitat for the species, including the Green, Yampa, and Colorado river systems that are crossed by alternative routes. Designated critical habitat is found in the Green River downstream from the Project. Water depletions in the upper Colorado River system in Wyoming, Colorado, and Utah could affect bonytail or its habitat.
Boreal toad	*Bufo boreas boreas*	Petitioned	✓	✓	CA	SS	SS	SS	NSS1	SE	SPC	Alternative routes are near and/or cross potentially suitable habitat for the species. Heritage data included four records of specimens collected in Utah and Colorado within 1 mile of the Project area, but all are from approximately 50 years ago. No recent occurrences of the species have been recorded (CNHP 2011; UNHP 2012; WYNDD 2011). However, 110 individuals were translocated to Strawberry Reservoir, which is near the Project area in Utah.

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Brassy minnow	*Hybognathus hankinsoni*								NSS4	ST		The Project area is within the predicted range for the species (WGFD 2010a). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011). The species was carried forward for analysis because it inhabits the Platte River system.
Brewer's sparrow	*Spizella breweri*		✓	✓					NSS4			The species is known to occur in the Project area. The species is wide ranging and occupies portions of the Project area during the breeding season (Birds of North America 2005). Heritage data included occurrences of the species in the Project area in Wyoming (CNHP 2011; UNHP 2012; WYNDD 2011).
Brown-capped rosy finch	*Leucosticte australis*								NSSU			The Project area is within the predicted range for the species in Wyoming (WGFD 2010a). Portions of the Project area in Mesa County, Colorado, are on the fringe of the known range for the species (Birds of North America 2005; Johnson et al. 2000).
Burrowing owl	*Athene cunicularia*		✓		SS				NSSU	ST	SPC	The species is known to occur in the Project area. The species is wide ranging and suitable habitat exists in the Project area in Wyoming, Colorado, and Utah (Birds of North America 2005). Heritage data included numerous occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Bushtit	*Psaltriparus minimus*								NSS3			The Project area is within the known range for the species (Sloane 2001; WGFD 2010a). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
California floater	*Anodonta californiensis*								NSSU		SPC	The species is known to occur near the Project area. Heritage data included one occurrence of the species at Burraston Ponds south of Mona, Utah, which is within 1 mile of the terminus of the Project (UNHP 2012; WYNDD 2011).
Canada lynx	*Lynx canadensis*	T				SS	SS	SS		FT/SE	S-ESA	This species is present at high elevations in Colorado, Wyoming, and potentially Utah. Although suitable habitat is not present, reintroduced individuals may disperse through the Project area. Critical habitat is designated outside the Project area.
Canvasback	*Aythya valisineria*								NSS3			Heritage data indicated that the species is not known to occur in the Project area (WYNDD 2011). However, Christmas Bird Count and Breeding Bird Survey include occurrences of the species near water bodies in the Project area (Gough et al. 1998). Seasonal migrants of the species may occur in portions of the Project area.
Canyon mouse	*Peromyscus crinitus*								NSS3			The Project area is within the known range for the species (Smithsonian 2011). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Caspian tern	*Hydroprogne caspia*								NSS3			The Project area is within the predicted range for the species (WGFD 2010a). Heritage data included a single occurrence of the species in 1988 at Lake Boreham (Link U430), which is on the edge of the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Chestnut-collared longspur	*Calcarius ornatus*								NSS4			The species is known to occur near the Project area. Heritage data included recent occurrences of the species in the Project area in Wyoming (WYNDD 2011).
Clark's grebe	*Aechmophorus clarkii*								NSSU			The species is known occur in the Project area.
Cliff chipmunk	*Tamias dorsalis*								NSS3			The Project area is within the predicted range for the species (WGFD 2010a) and known range for the species (Smithsonian 2011). Heritage data did not include any occurrences of the species within 15 miles of alternative routes (CNHP 2011; UNHP 2012; WYNDD 2011).

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Colorado pikeminnow	*Ptychocheilus lucius*	E				o	o	o		FE/ST	S-ESA	Some alternative routes for the Project are near and/or cross known habitat for the species. Spawning sites for the species are in the Green and Yampa rivers, which are crossed by alternative routes (FWS 2002a). Heritage data included occurrences of the species in all three states (CNHP 2011; UNHP 2012; WYNDD 2011). Designated critical habitat is found in the White, Yampa, and Green rivers in areas crossed by or downstream from the Project. Water depletions in the upper Colorado River system in Wyoming, Colorado, and Utah could affect Colorado pikeminnow or its habitat.
Colorado River cutthroat trout	*Oncorhynchus clarkii pleuriticus*		✓	✓	CA	SS/ MIS	SS	SS/ MIS	NSS2	SC	CS	Some alternative routes for the Project are near and/or cross known habitat for the species. Heritage data included occurrences of the species near alternative routes in Utah and Colorado (CNHP 2011; UNHP 2012, WYNDD 2011).

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Columbia spotted frog	*Rana luteiventris*		✓		CA	SS	SS	SS	NSS3		CS	Some alternative routes for the Project are near and/or cross potentially suitable habitat for the species. Heritage data included occurrences of the species in the Project area in Utah within the past 10 years. Heritage data also included occurrences of the species along the San Pitch River near Mount Pleasant and north of Fairview (Links U631 and U600) and in the West Creek area south of Mona (Link U650) (CNHP 2011; UNHP 2012, WYNDD 2011).
Columbian sharp-tailed grouse	*Tympanuchus phasianellus columbianus*		✓	✓	SS				NSS4	SC	S-ESA	The species is known to occur near the Project area. Heritage data included occurrences of the species near Links C13 and C100 (CNHP 2011; UNHP 2012; WYNDD 2011).
Common loon	*Gavia immer*								NSS1			The species is not known to occur in the Project area nor the Platte River system (Birds of North America 2005). However, the Wyoming Wildlife Action Plan predicts that suitable habitat for the species may be present in the Project area (WGFD 2010a). Heritage data included one occurrence of the species near the Project area in 1978. A single individual was observed along the North Platte River south of the junction with Interstate 80 along Link W30 (WYNDD 2011).

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Common shiner	*Luxilus cornutus*								NSS4	ST		The species is known to inhabit the Platte River system in eastern Wyoming (WGFD 2010a). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Cornsnake	*Elaphe guttata*				SS						SPC	The species inhabits areas along the Green River between Moab and Dinosaur National Monument (Bosworth 2003). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Desert bighorn sheep	*Ovis canadensis nelsoni*			✓			SS					Portions of the Project area are in designated suitable habitat for the species (Colorado Division of Wildlife [CDOW] 2006; Utah Division of Wildlife Resources [UDWR] 2008; WGFD 2010a).
Devil crayfish	*Cambarus diogenes*								NSSU			The species is not known to occur in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011). However, distribution of the species is not well established. Therefore, the species was carried forward for analysis.
Dwarf shrew	*Sorex nanus*								NSS3			The Project area is within the known range for the species (WGFD 2010a). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).

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SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Eastern red bat	*Lasiurus borealis*								NSSU			The Project area is in the eastern edge of the predicted range for the species (WGFD 2010a). Heritage data did not include any occurrences of the species in the Project area (WYNDD 2011).
Elk	*Cervus elaphus*					MIS	MIS					The species is known to occur in the Project area. Designated crucial habitats and migration corridors for the species are present in some portions of the Project area (CDOW 2006; UDWR 2005a; WGFD 2010a).
Eureka mountainsnail	*Oreohelix eurekensis*										SPC	The species is known to occur near the Project area. Heritage data included occurrences of the species near alternative routes in the Red Narrows area on the southern end of Uinta National Forest. Other occurrences of the species are recorded near alternative routes (UNHP 2012).
Fairy and tadpole shrimp	Combined account								NSSU			The distribution of species in these groups is poorly understood. Heritage data did not include any occurrences of this group of species (CNHP 2011; UNHP 2012; WYNDD 2011). However, based on habitat requirements, the species could be present in portions of the Project area.

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Fatmucket	*Lampsilis siliquoidea*								NSSU			The Project area is outside the predicted range for the species (WGFD 2010a). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011). The species was carried forward for analysis because it is known to inhabit the Platte River system.
Ferruginous hawk	*Buteo regalis*		✓	✓	SS				NSSU	SC	SPC	The species commonly occurs in the Project area.
Flammulated owl	*Otus flammeolus*					SS	SS	SS				The species is known to occur near the Project area. Heritage data included occurrences of the species in the Uinta Mountains. Heritage data included a single occurrence of the species north of Helper, Utah, in 1982 and older occurrences from the 1960s (CNHP 2011; UNHP 2012; WYNDD 2011).
Flannelmouth sucker	*Catostomus latipinnis*		✓	✓	CA				NSS1		CS	Some alternative routes for the Project are near and/or cross known habitat for the species (CNHP 2011; UNHP 2012; WYNDD 2011).
Flathead chub	*Platygobio gracilis*								NSS4	SC		The species is not known to occur in the Project area. The species was carried forward for analysis because it is known to inhabit the Platte River system.

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SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Forster's tern	*Sterna forsteri*								NSS3			The species is known to occur in the Project area. Heritage data included three occurrences of the species southwest of Rawlins near Hogback Lake (Link W30) (CNHP 2011; UNHP 2012; WYNDD 2011).
Franklin's gull	*Leucophaeus pipixcan*								NSS3			According to the Wyoming Wildlife Action Plan, the Project area is within the predicted range for the species (WGFD 2010a). However, Birds of North America indicates that the Project area is well outside the known range for the species (Birds of North America 2005). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011). The species was carried forward for analysis because water bodies near the Project area exhibit characteristics of suitable habitat for the species and are within the range of the species.
Fringed myotis	*Myotis thysanodes*		✓	✓	SS				NSS3		SPC	Heritage data did not include any known occurrences of the species in the Project area; however, some occurrences have been recorded within 10 miles of alternative routes in Utah (CNHP 2011; UNHP 2012; WYNDD 2011). The species was carried forward for analysis because portions of the Project area are in suitable habitat for the species.
Golden eagle	*Aquila chrysaetos*					MIS	MIS					The species commonly occurs in the Project area.

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Grasshopper sparrow	*Ammodramus savannarum*				SS				NSS4		SPC	Migrant individuals of the species may pass through the Project area in the summer, even though habitats in the Project area are considered marginal for the species. Heritage data included five occurrences of the species in the Uinta Basin (CNHP 2011; UNHP 2012; WYNDD 2011).
Gray wolf	*Canis lupus*	SPC								FE/SE	SS	Suitable habitats for the species are in portions of the Project area. Utah Heritage data included two occurrences of the species near the Project area in Utah that were reported by members of the general public (UNHP 2012). Both observations were made in 1989 and may have been the same individual wolf. Wyoming Heritage data included one occurrence of the species in 2003 and was the first observation in the area in 22 years (WYNDD 2011). This observation was made by a WGFD employee.
Great Basin gopher snake	*Pituophis catenifer deserticola*								NSS2			The Project area is within the known range for the species (WGFD 2010a). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).

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Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Great Basin pocket mouse	*Perognathus parvus*								NSS3			The Project area is within the predicted range for the species (WGFD 2010a). Heritage data did not include any occurrences of the species in the Project area in the past 50 years. The closest recent occurrence of the species was recorded approximately 18 miles from alternative routes in 1990 (CNHP 2011; UNHP 2012; WYNDD 2011).
Great Basin spadefoot	*Spea intermontana*		✓	✓					NSSU			The Project area is within the predicted range for the species (WGFD 2010a). Heritage data included occurrences of the species in the Project area in Wyoming and Colorado (CNHP 2011; UNHP 2012; WYNDD 2011).
Greater sage-grouse	*Centrocercus urophasianus*	C	✓	✓	CN	SS/ MIS	SS	SS	NSS2	SC	S-ESA	The species is known to occur in the Project area in all three states and is heavily monitored (CNHP 2011; UNHP 2012; WYNDD 2011).
Greater sandhill crane	*Grus canadensis tabida*								NSS4	SC		The species is known to occur in the Project area. Portions of the Project area include suitable habitat for the species (CDOW 2006; WGFD 2010a). Heritage data included occurrences of the species along the North Platte, Little Snake, and Yampa rivers and in Routt National Forest (CNHP 2011; WYNDD 2011).

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SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Greater short-horned lizard	*Phrynosoma hernandesi*								NSS4			The Project area is within the predicted range for the species (WGFD 2010a). Heritage data did not include any occurrences of the species in the Project area (WYNDD 2011).
Humpback chub	*Gila cypha*	E				o	o	o		FE/ST	S-ESA	The species is known to occur in the Project area. Heritage data included four known occurrences of the species that are crossed by or are in proximity to alternative routes (CNHP 2011; UNHP 2012; WYNDD 2011). Designated critical habitat is found downstream from the Project in the Yampa River and Green River. Water depletions in the upper Colorado River system in Wyoming, Colorado, and Utah could affect humpback chub or its habitat.
Iowa darter	*Etheostoma exile*								NSS3	SC		The species is known to occur in the Project area. The species is found in the Yampa River near Dinosaur National Monument (USGS 2004).

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SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
June sucker	*Chasmistes liorus*	E						o			S-ESA	June sucker is found in Utah Lake and spawns intermittently at the mouth of the Spanish Fork River. No known occurrences of the species exist in the 2-mile-wide study corridor (UNHP 2012). Sucker populations occur in tributaries of Utah Lake including the Provo River. It is probable the June sucker once spawned in the Spanish Fork River, but irrigation depletions and habitat alteration have left this area uninhabited (U.S. Fish and Wildlife Service [FWS] 1999a).
Juniper titmouse	*Baeolophus ridgwayi*								NSS3			The species is known to occur in the Project area. Heritage data included 10 occurrences of the species in the Project area along Links W492, W520, and W493 (CNHP 2011; UNHP 2012; WYNDD 2011). A Christmas Bird Count and Breeding Bird Survey report included occurrences of the species in Colorado and Utah (Gough et al. 1998).
Kit fox	*Vulpes macrotis*			✓	SS					SE	SPC	Portions of the Project area are within the known range for the species (CDOW 2006; UDWR 2005a). Heritage data included occurrences of the species in the Project area in Grand County, Utah, and Mesa County, Colorado (CNHP 2011, UNHP 2012).

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Land snails	Combined account								NSSU			Wyoming Heritage data for this group of species is lacking and little is known regarding distribution (WYNDD 2011). Land snails potentially are present in portions of the Project area based on habitat requirements.
Lark bunting	*Calamospiza melanocorys*								NSS4			The species may occur in the Project area in Wyoming during summer months. Heritage data included one occurrence of the species 20 years ago and two other observations from 1940 along Link U490 in Utah (UNHP 2012). Wyoming Heritage data did not include any occurrences of the species (WYNDD 2011).
Least chub	*Iotichthys phlegethontis*				SS						SPC	A UDWR study referenced monitored populations of the species in Burraston Ponds near Mona, Utah, which is approximately 1 mile from Links U640 and U650 (Bailey et al. 2005).
Least tern (interior population)	*Sternula antillarum*	E								FE/SE		The species inhabits areas along the Platte River in Nebraska (Birds of North America 2005) and may be affected by water use in the Platte River watershed. Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Lesser scaup	*Aythya affinis*								NSS3			The species was reported in the general Project area, but no detailed locations were available (Cook 1984). A Christmas Bird Count and Breeding Bird Survey report occurrences of the species near bodies of water in the Project area (Gough et al. 1998).
Lewis's woodpecker	*Melanerpes lewis*				SS				NSSU		SPC	Known breeding habitat for the species is in portions of the Project area (Birds of North America 2005). Heritage data included occurrences of the species in the Project area along Nebo Creek and numerous occurrences of the species along the Green River (UNHP 2012).
Lincoln's sparrow	*Melospiza lincolnii*					MIS						The Project area is within the known range of the species (Birds of North America 2005). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Little brown myotis	*Myotis lucifugus*								NSS4			The Project area is within the predicted range for the species (WGFD 2010a). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Loggerhead shrike	*Lanius ludovicianus*		✓									Known breeding habitat for the species is in portions of the Project area (Birds of North America 2005). Heritage data included occurrences of the species in the Project area in Wyoming (CNHP 2011; UNHP 2012; WYNDD 2011).

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Long-billed curlew	*Numenius americanus*		✓	✓	SS				NSS3	SC	SPC	The species is known to occur in the Project area (Birds of North America 2005).
Long-eared myotis	*Myotis evotis*		✓						NSS3			Portions of the Project area are within the predicted range for the species (WGFD 2010a). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Long-legged myotis	*Myotis volans*								NSS3			The Project area is within the predicted range for the species (WGFD 2010a). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Long-nosed leopard lizard	*Gambelia wislizenii*			✓						SC		The species is known to occur in the Project area. Heritage data included several occurrences of the species in the Project area in Garfield and Mesa counties, Colorado (CNHP 2011).
Macroinvertebrates (aquatic)	Combined Account					MIS	MIS					Numerous species inhabit the waterways in the Project area.
McCown's longspur	*Calcarius mccownii*								NSS4			The species may breed and forage in grassland habitats near the Aeolus substation during the summer (Birds of North America 2005). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Merlin	*Falco columbarius*								NSSU			The species is known to occur in the Project area. Heritage data included relatively recent occurrences of the species along Muddy Creek (Link W111), east of Hogback Lake, and along the North Platte River (Link W30) (WYNDD 2011).
Mexican spotted owl	*Strix occidentalis lucida*	T								FT/ST	S-ESA	The Project area is within the known range for the species (Birds of North America 2005). The Project area is outside designated critical habitat for the species. Potentially suitable habitat for the species may be present in portions of the Project area. Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Milk snake	*Lampropeltis triangulum taylori*			✓								Distribution, range, and recorded observations of this subspecies are lacking. Heritage data included occurrences of the species in Utah (UNHP 2012).
Moose	*Alces alces*								NSS4			The species is known to occur in the Project area. Portions of the Project area are within suitable habitats and range for the species.
Mountain plover	*Charadrius montanus*		✓	✓	SS				NSSU	SC	SPC	Portions of the Project area include known breeding areas for the species (Birds of North America 2005).

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SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Mountain sucker	*Catostomus platyrhynchus*			✓						SC		Portions of the Project area in Colorado and Utah are within the known range for the species (Colorado Parks and Wildlife 2010); (Belica et al. 2006). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Mountain whitefish	*Prosopium williamsoni*								NSS4			The species inhabits the Yampa River system (WGFD 2010a), which is crossed by alternative routes. Heritage data included two occurrences of the species in the Yampa River near Hayden, Colorado (CNHP 2011; UNHP 2012; WYNDD 2011).
Mule deer	*Odocoileus hemionus*					MIS	MIS					The species is known to occur throughout the Project area. Portions of the Project area are within suitable habitats and range for the species.
North American wolverine	*Gulo gulo luscus*					SS			NSS3	SE		The predicted range for the species is outside the Project area. The species may have been extirpated from Wyoming and Utah. (UDWR 2005a; WGFD 2010a). UNHP data included two occurrences of the species near Link U600 in the Manti-La Sal National Forest. However, the sightings appear to have been contested (UNHP 2012).

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SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Northern flying squirrel	*Glaucomys sabrinus*								NSS4			The Project area is on the extreme edge of predicted range for the species (WGFD 2010a). Wyoming Heritage data did not include any occurrences of the species in the Project area (WYNDD 2011). Utah Heritage data included one occurrence of the species from 1966 in Brook Meadow, which is approximately 10 miles northeast of Helper (UNHP 2012).
Northern goshawk	*Accipter gentilis*		✓	✓	CA	SS/ MIS	SS/ MIS	SS/ MIS	NSSU		CS	The species is known to occur in portions of the Project area. Heritage data included occurrences of the species, primarily on U.S. Forest Service lands throughout the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Northern leatherside chub	*Lepidomeda copei*		✓		CA				NSSU			The Utah Vertebrate Report included maps that indicate that the species may occur in the Project area (UNHP 2003). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Northern leopard frog	*Rana pipiens*		✓	✓					NSSU	SC		The species is known to occur in portions of the Project area. Heritage data included occurrences of the species in Utah (UNHP 2012).
Northern pintail	*Anas acuta*								NSS3			The species may occur near water habitats in the Project area, primarily in winter months. Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Northern plains killifish	*Fundulus kansae*								NSS4			The species is known to occur in the eastern Platte River system in Wyoming (WGFD 2010a). Heritage data did not include any occurrences of the species in the Project area (WYNDD 2011).
Northern tree lizard	*Urosaurus ornatus wrighti*								NSS1			The Project area is within the known range for the species (WGFD 2010a; Stebbins 2003). Heritage data did not include any occurrences of the species in the Project area (WYNDD 2011).
Olive-backed pocket mouse	*Perognathus fasciatus*								NSS4			The species is known to occur in the Project area. Heritage data included occurrences of the species in the Project area (WYNDD 2011).
Oreohelix mountain snails	Combined account								NSSU			The distribution of this group of species is poorly understood but could be present in the Project area based on habitat requirements. Wyoming Heritage data did not include any occurrences of the species for this group of species (WYNDD 2011).
Pale milksnake	*Lampropeltis triangulum multistriata*								NSS3			The Project area extends into the western edge of the predicted range for the species (WGFD 2010a). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).

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SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Pallid bat	*Antrozous pallidus*								NSS3			The Project area is within the known range for the species (WGFD 2010a). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Pallid sturgeon	*Scaphirhynchus albus*	E										The species is native to the Platte River in eastern Nebraska and is not known to occur in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011); however, it may be affected by water use in the Platte River watershed in Wyoming.
Peregrine falcon	*Falco peregrinus anatum*		✓	✓		SS	SS	SS	NSS3	SC		The species is known to occur in portions of the Project area. Heritage data included occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Pill clams	Combined account								NSSU			This group of species may be present in the Project area based on habitat requirements (WGFD 2010a). WGFD indicates that pill clams could be present in some water systems in the Project area in Wyoming. Heritage data did not include any occurrences for this group of species (WYNDD 2011).
Pinyon mouse	*Peromyscus truei*								NSS3			The Project area is within the known range for the species (Smithsonian 2011). Heritage data included one occurrence of the species in the Project area approximately 5 miles west of Baggs, Wyoming, in 1977 (WYNDD 2011).

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SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Piping plover	*Charadrius melodus circumcinctus*	T								FT/ST		The species has no designated critical habitat in the Project area. Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011). This species is found along the Platte River system in Nebraska and may be affected by water use in the Platte River watershed.
Plain pocketbook	*Lampsilis cardium*								NSSU			The Project area is outside the predicted range for the species (WGFD 2010a). The species was carried forward for detailed analysis because it occurs in the Platte River system.
Plains black-headed snake	*Tantilla nigriceps*								NSSU			The Project area is within the predicted range for the species (WGFD 2010a). Other sources indicated the Project area is outside the known range for the species (Stebbins 2003). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Plains orangethroat darter	*Etheostoma spectabile*								NSSU	SC		The species occurs in the extreme eastern Platte River in Wyoming (WGFD 2010a). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Plains topminnow	*Fundulus sciadicus*								NSS3			The species occurs in the extreme eastern Platte River in Wyoming (WGFD 2010a). Heritage data did not include any occurrences of the species in the Project area (WYNDD 2011).

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SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Pond snails (combined account)	(*Stagnicola*)								NSSU			Wyoming Heritage data for this group of species is lacking and little is known regarding distribution (WYNDD 2011). This group of species was carried forward for detailed analysis because they potentially are present in portions of the Project area based on habitat requirements.
Pygmy nuthatch	*Sitta pygmaea*								NSSU			The Project area is within the predicted range for the species (WGFD 2010a). Heritage data did not include any occurrences of the species in the Project area (WYNDD 2011).
Pygmy rabbit	*Brachylagus idahoensis*	SPC	✓		SS				NSS3		SPC	The species is known to occur in portions of the Project area (CDOW 2006; UDWR 2005a; WGFD 2010a). Heritage data included occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Razorback sucker	*Xyrauchen texanus*	E				o	o	o		FE/SE	S-ESA	The species is known to occur in the Project area in Utah and Colorado. The species inhabits the Green, Yampa, and Colorado river systems, which are crossed by alternative routes (FWS 2002b). Heritage data included occurrences of the species (CNHP 2011; UNHP 2012; WYNDD 2011). Designated critical habitat is found in the White, Yampa, and Green rivers in areas crossed by or downstream from the Project. Water depletions in the upper Colorado River system in Wyoming, Colorado, and Utah could affect razorback sucker or its habitat.
Redhead	*Aythya americana*								NSS3			Winter migrants of the species may be present near areas of water in the Project area (Gough et al. 1998). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Red-naped sapsucker	*Sphyrapicus nuchalis*					MIS						The Project area is within the known range for the species (Birds of North America 2005). Heritage data did not include any occurrences of the species in the Project area (UNHP 2012; WYNDD 2011).
Ringed crayfish	*Orconectes neglectus*								NSSU			The species inhabits the Platte River system (WGFD 2010a). Heritage data did not include any occurrences of the species in the Project area (WYNDD 2011).

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SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
River otter	*Lontra canadensis*								NSSU	ST		The species is known to inhabit river systems in the Project area. Heritage data included occurrences of the species near Flaming Gorge, Wyoming (CNHP 2011; UNHP 2012; WYNDD 2011).
Rocky Mountain bighorn sheep	*Ovis canadensis canadensis*					SS		SS	NSS4			The species is known to occur in the Project area. Potentially suitable habitat for the species is present in portions of the Project area.
Roundtail chub	*Gila robusta*		✓	✓	CA				NSS1	SC	CS	The species is known to inhabit river systems in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Sage sparrow	*Amphispiza belli*		✓						NSS4			The species is known to occur in portions of the Project area. Breeding habitat for the species is present in the Project area (Birds of North America 2005).
Sage thrasher	*Oreoscoptes montanus*		✓						NSS4			The species is known to occur in portions of the Project area. Wyoming Heritage data included occurrences of the species in the Project area (WYNDD 2011).
Short-eared owl	*Asio flammeus*				SS				NSS4		SPC	The species is known to occur in the Project area. Suitable habitat for the species is scattered throughout the Project area.
Smooth greensnake	*Opheodrys vernalis*								NSS3		SPC	The Project area is within the known range of the species (Redder et al. 2006). Utah Heritage data included one occurrence of the species near Current Creek at Link U420 (UNHP 2012).

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Snowy egret	*Egretta thula*								NSS3			The species is known to occur along some waterways in the Project area in Wyoming (Birds of North America 2005).
Song sparrow	*Melospiza melodia*					MIS						The Project area is within the known range for the species (Birds of North America 2005). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Southern Bonneville springsnail	*Pyrgulopsis transversa*										SPC	The species is known to occur in the Project area. Heritage data included occurrences of the species in Thistle Creek, near Link U625 (UNHP 2012).
Southern leatherside chub	*Lepidomeda aliciae*				CA		SS	SS			SPC	The species is known to occur in water systems in the Project area (UNHP 2012).
Southwestern willow flycatcher	*Empidonax traillii extimus*	E								FE/SE	S-ESA	Portions of the Project area in Utah are within the breeding range of the species (Sedgwick 2000). Critical habitat for the species has been designated along the Colorado River, downstream from alternative routes (FWS 2005a). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Spotted bat	*Euderma maculatum*		✓		SS	SS	SS	SS	NSS3		SPC	Suitable roosting and foraging habitats for the species are present in the Project area (Luce and Keinath 2007). Heritage data included one occurrence of the species along Chokecherry Creek on the Ashley National Forest; approximately 3 miles north of Link U401 (CNHP 2011; UNHP 2012; WYNDD 2011).
Stonecat	*Noturus flavus*									SC		The species is known to inhabit the Platte River system, which is in the Project area (USGS 2004). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Suckermouth minnow	*Phenacobius mirabilis*								NSS2	SE		The species is known to inhabit the Platte River system, which is in the Project area (USGS 2004). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Swainson's hawk	*Buteo swainsoni*								NSSU			The species is known to occur in portions of the Project area. Heritage data included occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).

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SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Three-toed woodpecker	*Picoides dorsalis*				SS	SS	SS	SS/ MIS	NSSU		SPC	The Project area is within the known range for the species (Birds of North America 2005). Heritage data included one occurrence of the species in the Project area and near alternative routes in 1930. A single adult was detected along Reservation Ridge during a playback survey in 1989. Two other adults were detected along Reservation Ridge in 1989. Links 513 and 515 are along Reservation Ridge (Allen 2013; CNHP 2011; UNHP 2012; WYNDD 2011).
Townsend's big-eared bat	*Corynorhinus townsendii*		✓	✓	SS	SS	SS	SS	NSS2	SC	SPC	Suitable roosting and foraging habitats for the species are present in the Project area (Oliver 2000). Heritage data did not include any occurrences of the species within 1 mile of alternative routes (CNHP 2011; UNHP 2012; WYNDD 2011).
Trumpeter swan	*Cygnus buccinator*		✓						NSS2			The species occasionally is present in portions of the Project area in Wyoming. Heritage data included one occurrence of the species at Hogback Lake in 1985 and one occurrence along Muddy Creek in 1997, which are both near Link W110 (WYNDD 2011).

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Vagrant shrew	*Sorex vagrans*								NSS4			The Project area is outside the known range for the species according to North American Mammals online database (Smithsonian 2011). However, the Project area is within the predicted range for the species according to the Wyoming Wildlife Action Plan (WGFD 2010a). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Virginia rail	*Rallus limicola*								NSS3			The Project area is within the known range for the species (Birds of North America 2005).
Warbling vireo	*Vireo gilvus*					MIS						The Project area is within the known range for the species (Birds of North America 2005). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Western red bat	*Lasiurus blossevillii*				SS						SPC	The Project area is at the eastern edge of the known range for the species (Smithsonian 2011). Heritage data included one occurrence of the species near Helper, Utah, in 1937 and one occurrence near Utah Lake in 1991 (UNHP 2012).
Western scrub-jay	*Aphelocoma californica*								NSS3			Breeding Bird Surveys and Christmas Bird Counts have identified occurrences of the species in Colorado and Utah (Gough et al. 1998). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).

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SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Western small-footed myotis	*Myotis ciliolabrum*								NSS4			The Project area is within the predicted range for the species (WGFD 2010a). Heritage data did not include any occurrences of the species in the Project area (WYNDD 2011).
Western snowy plover	*Charadrius alexandrinus nivosus*			✓	SS					SC		UDWR has identified habitat for the species in the Uinta Basin and south of the Book Cliffs (UDWR 2005a). Heritage data included one occurrence of the species within 1 mile of Link U490 in 2005. Heritage data included one other occurrence near Pelican Lake in 1963 (CNHP 2011; UNHP 2012; WYNDD 2011).
Western spiny softshell	*Apalone spinifera hartwegi*								NSS4			The species may occur in river systems in northern Carbon County, Wyoming (WGFD 2010a). Heritage data did not include any occurrences of the species in the Project area (WYNDD 2011).
White-faced ibis	*Plegadis chihi*		✓	✓					NSS3			Important habitats for the species are within 4 miles of the Project area. Heritage data included occurrences of the species in the Project area in Wyoming and Colorado (CNHP 2011; UNHP 2012; WYNDD 2011).
White-tailed prairie dog	*Cynomys leucurus*	SPC	✓	✓	SS						SPC	The species is known to occur in the Project area. Heritage data included mapped colonies in Utah (CNHP 2011; UNHP 2012; WYNDD 2011).

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Whooping crane	*Grus americana*	E								FE/SE		The species is not known to occur in the Project area in Colorado (CNHP 2011). Heritage data included occurrences of the species in Utah in the 1970s, but the species is not suspected to presently inhabit Utah (UNHP 2012). According to the Colorado Action Plan, the species is not known to have breeding populations in Colorado (CDOW 2006). The Project area is outside the known range according to Birds of North America (2005). This species is found along the Platte River system in Nebraska and may be affected by water use in the Platte River watershed. Critical habitat is designated on a portion of the Platte River.
Willow flycatcher	*Empidonax traillii*								NSS4			Portions of the Project area are in potentially suitable breeding habitats for the species (Birds of North America 2005). Heritage data did not include any occurrences of the species in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).
Wood frog	*Lithobates sylvaticus*								NSS2	SC		The Project area is within the predicted range for the species (WGFD 2010a). However, Heritage data indicated the closest occurrence of the species is more than 40 miles away from alternative routes (CNHP 2011; UNHP 2012; WYNDD 2011).

TABLE J-10
SPECIAL STATUS WILDLIFE SPECIES CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species			State Sensitive Species[2]			Rationale and Nearest Known Location to the Project Area
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Wyoming pocket gopher	*Thomomys clusius*	SPC	✓						NSS3			The Project area is within the known range and distribution of the species (WGFD 2010a). Heritage data included occurrences of the species in the Project area in Wyoming (WYNDD 2011).
Yellow-billed cuckoo	*Coccyzus americanus*	T	✓	✓	CN	SS	SS	SS	NSSU	SC	S-ESA	The species has been observed along various waterways in the Project area (Cerovski et al. 2004). Heritage data included occurrences of the species in and near Ouray National Wildlife Refuge (CNHP 2011; UNHP 2012; WYNDD 2011).

NOTES:
[1]Listed by at least one of the Bureau of Land Management districts
[2] Special status species in at least one state

Endangered Species Act
- C = Candidate
- E = Endangered
- EX = Experimental/nonessential
- T = Threatened
- P = Proposed
- SPC = Species of Concern

Bureau of Land Management
- ✓ = Sensitive species present in district
- CA = Conservation Agreement species
- CN = Candidate species
- SS = BLM Sensitive Species

U.S. Forest Service
- ✓ = Potential habitat within Forest
- o = Offsite, primarily relates to downstream fish
- MIS = Management Indicator Species
- SS = Sensitive Species with known habitat on Forest

Wyoming
- NSSU = Native Species Status Unknown
- NSS# = Native Species Status – the lower the number, the greater the conservation need;
- NSS1-NSS4 = Species of Greatest Conservation Need

Colorado
- FE = Federally Endangered
- FT = Federally Threatened
- SE = State Endangered
- ST = State Threatened
- SC = State Special Concern (not a statutory category)

Utah
- S-ESA = Sensitive as a result of being listed under the Endangered Species Act
- CS = Conservation Agreement Species
- SPC = Species of Conservation Concern

TABLE J-11
SPECIAL STATUS WILDLIFE SPECIES NOT CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species[2, 3]			State Sensitive Species[4]			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Abert's squirrel	*Sciurus aberti*						MIS					Abert's squirrel is an MIS on the Manti-La Sal National Forest. Abert's squirrel is a State of Utah high-interest species, found only on the Monticello District in Utah (U.S. Forest Service 1986b). The Monticello Ranger District of the Manti-La Sal National Forest is not in the Project or study area.
Allen's big-eared bat	*Idionycteris phyllotis*				SS						SPC	The Project area is outside of the predicted range for the species. The species occurs in extreme southern Utah with range extending only into southern Grand County (Utah Division of Wildlife Resources [UDWR] 2005a).
Arizona toad	*Bufo microscaphus*				SS							The Project area is outside of the predicted range for the species. The species occurs in extreme southwestern Utah (UDWR 2005a).
Arkansas darter	*Etheostoma cragini*									ST		The species is not known to occur in the Project area (Colorado Natural Heritage Program [CNHP] 2011). The species occurs in the Arkansas River east of Canon City, Colorado (almost 200 miles from the Project area) (U.S. Geological Survey 2004).
Barrow's goldeneye	*Bucephala islandica*								NSS3			The species is not known to occur in the Project area (WYNDD 2011). Breeding Bird Survey and Christmas Bird Count have not identified the species as occurring in the Project area (Gough et al. 1998). The Project area includes minimal habitat for the species based on Wyoming Game and Fish Department (WGFD) range map (WGFD 2010a).

TABLE J-11
SPECIAL STATUS WILDLIFE SPECIES NOT CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species[2, 3]			State Sensitive Species[4]			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Bear Lake sculpin	*Cottus extensus*										SPC	The predicted range for the species is outside the Project area (UDWR 2005a).
Black Hills red-bellied snake	*Storeria occipitomaculata pahasapae*								NSSU			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Black-backed woodpecker	*Picoides arcticus*								NSSU			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Black-tailed prairie dog	*Cynomys ludovicianus*	SPC	✓							SC		The predicted range for the species is outside the Project area (Colorado Division of Wildlife [CDOW] 2006).
Boreal owl	*Aegolius funereus*					SS			NSS3			Potentially suitable habitat for the species occurs in the Project area, but the species is not known to occur in the Project area. The species is known to occur in the Uinta Mountains on the Ashley National Forest; suitable coniferous habitat does not occur on the portion of the Forest in the Project area. Heritage data included a single occurrence of the species in the Project area in Wyoming in 1989. However, the accuracy of the species identification has been questioned (Jorgensen 2013, Utah Natural Heritage Program [UNHP] 2012; Wyoming Natural Diversity Database [WYNDD] 2011).
Botta's pocket gopher	*Thomomys bottae rubidus*									SC		The species is not known to occur in the Project area (CNHP 2011). The species is known to occur in the eastern half of Colorado (CDOW 2006).

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SPECIAL STATUS WILDLIFE SPECIES NOT CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species[2, 3]			State Sensitive Species[4]			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Burbot	*Lota lota*								NSS3			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Calico crayfish	*Orconectes immunis*								NSS4			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
California condor	*Gymnogyps californianus*	E/X										The species has not been observed in the Project area. The Project area is approximately 120 miles from Lake Powell and portions of the Colorado River where the species has been reintroduced. The species would not be affected by the Project.
Canyon treefrog	*Hyla arenicolor*			✓								The species is not known to occur in the Project area. All occurrences of the species are south of Interstate 70 (I-70) in Colorado, which is outside the Project area (CNHP 2011). The known range for the species is south of Moab and Grand Junction (CDOW 2006; UDWR 2005a).
Cave physa	*Physella spelunca*								NSSU			The species is not known to occur in the Project area (WYNDD 2011). The species is only known to inhabit a single cave near Lovell, Wyoming (more than 200 miles north of the Project area) (WGFD 2010a).
Central stoneroller	*Campostoma anomalum*								NSS4			The species is not known to occur in the Project area (WYNDD 2011). The species does not occur in Carbon or Sweetwater counties (WGFD 2010a).

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SPECIAL STATUS WILDLIFE SPECIES NOT CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species[2, 3]			State Sensitive Species[4]			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Common chuckwalla	*Sauromalus ater*				SS							The species is not known to occur in the Project area (UNHP 2012). The species occurs in the Mojave Desert, which is outside of the Project area (UDWR 2005a).
Common garter snake	*Thamnophis sirtalis*									SC		UNHP data included one occurrence within 1 mile of alternative routes at Seely Pond, which is north of Mount Pleasant, Utah (Link U631) (UNHP 2012). CNHP data included no occurrences of the species in Colorado (where the species is listed) (CNHP 2011). The Project area in Colorado is outside the known range for the species (Stebbins 2003).
Common king snake	*Lampropeltis getula*									SC		The species is not known to occur in the Project area (CNHP 2011). The species range only extends into the extreme southwestern corner of Colorado (CDOW 2006).
Coral Pink Sand Dunes tiger beetle	*Cicindela albissima*				CN							The Project area is outside the predicted range for the species (UDWR 2005a). The species is only known know to occur in Kane County near Kanab, Utah (UDWR 2005a).
Couch's spadefoot	*Scaphiopus couchii*									SC		The species is not known to occur in the Project area (CNHP 2011). The species range only extends into the extreme southwestern corner of Colorado (AmphibiaWeb 2012).
Cylindrical papershell	*Anodontoides ferussacianus*								NSSU	SC		The species is not known to occur in the Project area (CNHP 2011; WYNDD 2011).

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Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species[2, 3]			State Sensitive Species[4]			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Dark kangaroo mouse	*Microdipodops megacephalus*				SS						SPC	The Project area is outside the known range for the species (Smithsonian 2011). The species is not known to occur in the Project area (UNHP 2012).
Desert iguana	*Dipsosaurus dorsalis*				SS							The species is not known to occur in the Project area (UNHP 2012). The species occurs in the Mojave Desert, which is outside of the Project area (UDWR 2005a).
Desert night lizard	*Xantusia vigilis*				SS							The species is not known to occur in the Project area (UNHP 2012). The species occurs in the Mojave Desert, which is outside of the Project area (UDWR 2005a).
Desert sucker	*Catostomus clarkii*				SS							The species is not known to occur in the Project area (UNHP 2012). The species occurs in the Virgin River system, which is outside of the Project area (UDWR 2005a).
Dickcissel	*Spiza americana*								NSS4			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Finescale dace	*Phoxinus neogaeus*								NSS2			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).

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Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species[2, 3]			State Sensitive Species[4]			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Fisher	*Martes pennanti*							SS	NSSU			The predicted range for the species is outside the Project area in Wyoming (WGFD 2010a). The species is believed to be extirpated from Utah. Only one occurrence of the fisher has been reported in Utah. In 1938, fisher tracks were photographed near Trial Lake in Summit County outside of the Project area. No other occurrences of the fisher in the state have been documented in Utah (UNHP 2012; WYNDD 2011).
Giant floater	*Pyganodon grandis*								NSSU			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Gila monster	*Heloderma suspectum*				SS							The species is not known to occur in the Project area (UNHP 2012). The species occurs in the Virgin River system, which is outside of the Project area (UDWR 2005a).
Goldeye	*Hiodon alosoides*								NSS3			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Great Basin silverspot butterfly	*Speyeria nokomis nokomis*			✓								The predicted range for the species is outside the Project area (CDOW 2006). The species is not known to occur in the Project area (CNHP 2011).
Great Basin skink	*Plestiodon skiltonianus utahensis*								NSSU			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).

TABLE J-11
SPECIAL STATUS WILDLIFE SPECIES NOT CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species[2, 3]			State Sensitive Species[4]			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Great gray owl	*Strix nebulosa*					SS			NSSU			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (UNHP 2012; WYNDD 2011).
Great Plains earless lizard	*Holbrookia maculata maculata*								NSSU			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Great Plains narrowmouth toad	*Gastrophryne olivacea*									SC		The predicted range for the species is outside the Project area (AmphibiaWeb 2012). The species is not known to occur in the Project area (CNHP 2011)
Great Plains toad	*Bufo cognatus*				SS				NSSU		SPC	The species is believed to be extinct in Utah (Bosworth 2003) and is not known to occur in western Colorado or western Wyoming (CNHP 2011; UNHP 2012; WYNDD 2011).
Greenback cutthroat trout	*Oncorhynchus clarkii stomias*	T								FT/ST		The species was discovered in Manti-La Sal National Forest in 2009 in Beaver Creek, a tributary to La Sal Creek (UDWR 2009a). Beaver Creek is on the southern end of the forest unit outside the Project area. Heritage data did not include any known occurrences of the species in the Project area.
Grizzly bear	*Ursus arctos horribilis*	T								FT/SE	S-ESA	The predicted range for the species does not extend south of Yellowstone National Park (Smithsonian 2011). Heritage data included one occurrence from the 1870 and one occurrence from the early 1900s near alternative routes (CNHP 2011; UNHP 2012; WYNDD 2011).

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SPECIAL STATUS WILDLIFE SPECIES NOT CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species[2, 3]			State Sensitive Species[4]			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Gunnison sage-grouse	*Centrocercus minimus*	P		X	CN					SC	S-ESA/ CS	All occurrences of the species included in Heritage data were south of I-70. The Project area is north of I-70 and the closest occurrence (brood/nesting habitat) is 10 miles southeast of the southern-most alternative routes. All occupied habitat and occurrences are south of the Colorado River. The Project area is north of the Colorado River (CNHP 2011; UNHP 2012).
Gunnison's prairie dog	*Cynomys gunnisoni*				SS						SPC	The predicted range for the species is outside the Project area (UDWR 2005a). All occurrences of the species are south of I-70 (UNHP 2012). Alternative routes are north of I-70 and are approximately 28 miles from the closest occurrence.
Harlequin duck	*Histrionicus histrionicus*								NSS3			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Hayden's shrew	*Sorex haydeni*								NSS4			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Hidden Forest Uinta chipmunk	*Neotamias umbrinus nevadensis*								NSS4			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Hispid pocket mouse	*Chaetodipus hispidus*								NSS3			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).

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SPECIAL STATUS WILDLIFE SPECIES NOT CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species[2, 3]			State Sensitive Species[4]			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Hornyhead chub	*Nocomis biguttatus*		✓						NSS2			The species is not known to occur in the Project area (UNHP 2012). The species is believed to be extinct in the Platte River system. The species is found no farther west than around Wheatland, Wyoming (Miller et al. 2005).
Idaho pocket gopher	*Thomomys idahoensis*		✓						NSS3			The predicted range for the species is outside the Project area (WGFD 2010b; Smithsonian 2011).
Jackson Lake springsnail	*Pyrgulopsis robusta*								NSSU			The predicted range for the species is outside the Project area in northwestern Wyoming (WGFD 2010a).
Kendall Warm Springs dace	*Rhinichthys osculus thermalis*	E										The predicted range for the species is outside the Project area. The species occurs in Sublette County, Wyoming (WGFD 2010a).
Lake chub	*Couesius plumbeus*									SE		The predicted range for the species is outside the Project area (CDOW 2006). The species is not known to occur in the Project area (CNHP 2011). The species may occur in upper Green River above Flaming Gorge. The species does not occur in Colorado River watersheds in the Project area.
Least weasel	*Mustela nivalis*								NSSU			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Lesser prairie-chicken	*Tympanuchus pallidicinctus*									ST		The predicted range for the species is outside the Project area (CDOW 2006). The species is not known to inhabit areas west of the Rocky Mountains.

TABLE J-11
SPECIAL STATUS WILDLIFE SPECIES NOT CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species[2, 3]			State Sensitive Species[4]			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Massasauga rattlesnake	*Sistrurus catenatus*									SC		The predicted range for the species is outside the Project area (CDOW 2006). The species is not known to occur in the Project area (CNHP 2011). The species occurs in southern Colorado.
Mojave rattlesnake	*Crotalus scutulatus*				SS							The species is not known to occur in the Project area (UNHP 2012). The species occurs in the Mojave Desert, which is outside of the Project area.
Ninemile pyrg	*Pyrgulopsis nonaria*										SPC	The predicted range for the species is outside the Project area. The species is only known to occur in springs near Nine Mile Reservoir south of Sterling, Utah (approximately 30 miles from the Project area) (Oliver and Bosworth 1999).
Northern cricket frog	*Acris crepitans*									SC		The species is not known to occur in the Project area (CNHP 2011).
Northern many-lined skink	*Plestiodon multivirgatus multivirgatus*								NSSU			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Northern myotis	*Myotis septentrionalis*								NSS3			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Northern pocket gopher	*Thomomys talpoides macrotis*									SC		The species is not known to occur in the Project area (CNHP 2011). Colorado GAP data indicated that the Project area is outside the range for the species.

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Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species[2, 3]			State Sensitive Species[4]			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Northern pygmy-owl	*Glaucidium gnoma californicum*								NSSU			The predicted range for the species is outside the Project area (Birds of North America 2005; WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Northern redbelly dace	*Phoxinus eos*									SE		The predicted range for the species is outside the Project area (U.S. Geological Survey 2004). The species is not known to occur in the Project area (CNHP 2011).
Northern rubber boa	*Charina bottae*								NSS3			The predicted range for the species is outside the Project area in Wyoming (WYNDD 2011). Utah Heritage data included three occurrences of the species near the western end of the Project area in Utah (UNHP 2012).
Ornate box turtle	*Terrapene ornata ornata*								NSSU			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Pearl dace	*Margariscus margarita*								NSS2			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Pilose crayfish	*Pacifastacus gambelii*								NSSU			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Plains garter snake	*Thamnophis radix*								NSSU			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).

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			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Plains harvest mouse	*Reithrodontomys montanus*								NSS3			The predicted range for the species is outside the Project area (Smithsonian 2011; WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Plains hog-nosed snake	*Heterodon nasicus*								NSSU			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Plains leopard frog	*Rana blairi*									SC		The predicted range for the species is outside the Project area (CDOW 2006). The species is not known to occur in the Project area (CNHP 2011).
Plains minnow	*Hybognathus placitus*								NSS3	SE		The predicted range for the species is outside the Project area. The species is not known to occur in the Project area (CNHP 2011; WYNDD 2011).
Plains pocket gopher	*Geomys bursarius*								NSS3			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Plains pocket mouse	*Perognathus flavescens*								NSS3			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Plains sharp-tailed grouse	*Tympanuchus phasianellus jamesii*									SE		The predicted range for the species is outside the Project area (CDOW 2006). The species is not known to occur in the Project area (CNHP 2011).

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Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species[2, 3]			State Sensitive Species[4]			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Plains spadefoot	*Spea bombifrons*								NSSU			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Prairie lizard	*Sceloporus consobrinus*								NSSU			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Prairie racerunner	*Aspidoscelis sexlineatus viridis*								NSSU			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Preble's shrew	*Sorex preblei*				SS				NSS3			The predicted range for the species is outside the Project area (Smithsonian 2011; WGFD 2010a). The species is not known to occur in the Project area (UNHP 2012; WYNDD 2011).
Preble's meadow jumping mouse	*Zapus hudsonius preblei*	T								FT/ST		The predicted range for the species is outside the Project area (Smithsonian 2011; WGFD 2010a). The species is not known to occur in the Project area (CNHP 2011; WYNDD 2011).
Pygmy shrew	*Sorex hoyi*								NSS2			The predicted range for the species is outside the Project area. (Smithsonian 2011). The species is not known to occur in the Project area (WYNDD 2011).
Red-sided garter snake	*Thamnophis sirtalis parietalis*								NSSU			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).

TABLE J-11
SPECIAL STATUS WILDLIFE SPECIES NOT CARRIED FORWARD FOR ANALYSIS

Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species[2, 3]			State Sensitive Species[4]			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Rio Grande chub	*Gila pandora*									SC		The predicted range for the species is outside the Project area (CDOW 2006). The species is not known to occur in the Project area (CNHP 2011).
Rio Grande cutthroat trout	*Oncorhynchus clarkii virginalis*	C								SC		The predicted range for the species is outside the Project area (CDOW 2006). The species is not known to occur in the Project area (CNHP 2011).
Rio Grande sucker	*Catostomus plebeius*									SE		The predicted range for the species is outside the Project area (CDOW 2006). The species is not known to occur in the Project area (CNHP 2011).
Rocky Mountain capshell	*Acroloxus coloradensis*									SC		The predicted range for the species is outside the Project area (CDOW 2006). The species is not known to occur in the Project area (CNHP 2011).
Roundtail horned lizard	*Phrynosoma modestum*									SC		The species is not known to occur in the Project area (CNHP 2011).
Sauger	*Sander canadensis*								NSS3			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Shovelnose sturgeon	*Scaphirhynchus platorynchus*								NSS3			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Sidewinder	*Crotalus cerastes*				SS							The predicted range for the species is outside the Project area (UDWR 2005a). The species is not known to occur in the Project area (UNHP 2012).

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Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species[2, 3]			State Sensitive Species[4]			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Silky pocket mouse	*Perognathus flavus*				SS				NSS3			The predicted range for the species is outside the Project area (Smithsonian 2011; WGFD 2010a). The species is not known to occur in the Project area (UNHP 2012; WYNDD 2011).
Snake River cutthroat trout	*Oncorhynchus clarkii spp.*								NSS4			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Southern redbelly dace	*Phoxinus erythrogaster*									SE		The species is not known to occur in the Project area (CNHP 2011). The species occurs in the Arkansas River in the eastern half of Colorado.
Speckled rattlesnake	*Crotalus mitchellii*				SS							The predicted range for the species is outside the Project area (UDWR 2005a). The species is not known to occur in the Project area (UNHP 2012).
Spotted ground squirrel	*Spermophilus spilosoma*								NSS4			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Sturgeon chub	*Macrhybopsis gelida*								NSS1			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Swift fox	*Vulpes velox*		✓						NSS4	SC		The predicted range for the species is outside the Project area (Smithsonian 2011; Sovada et al. 2011; WGFD 2010a). The species is not known to occur in the Project area (CNHP 2011; UNHP 2012; WYNDD 2011).

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			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Texas blind snake	*Leptotyphlops dulcis*									SC		The species is not known to occur in the Project area (CNHP 2011). The species is only known to occur in extreme southeastern Colorado (CDOW 2006).
Texas horned lizard	*Phrynosoma cornutum*									SC		The species is not known to occur in the Project area (CNHP 2011). The species is known to occur in southeastern Colorado (CDOW 2006).
Triploid checkered whiptail	*Cnemidophorus neotesselatus*									SC		The species is not known to occur in the Project area (CNHP 2011). The species is known to occur in southeastern Colorado (CDOW 2006).
Upland sandpiper	*Bartramia longicauda*								NSSU			The species is not known to occur in the Project area (WYNDD 2011).
Utah physa	*Physella utahensis*										SPC	The species was historically found in Utah Lake, but is believed to be extirpated. The only existing populations in Utah are in Box Elder County (Oliver and Bosworth 1999).
Utah prairie dog	*Cynomys parvidens*	T									S-ESA	The established range for the species is outside the Project area. Historic records indicate populations as far north as Sanpete County near Gunnison, which is approximately 30 miles from alternative routes (UDWR 2005a). The species is not known to occur in the Project area (UNHP 2012).
Valley garter snake	*Thamnophis sirtalis fitchi*								NSSU			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).

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			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Virgin River spinedace	*Lepidomeda mollispinis mollispinis*				CA							The predicted range for the species is outside the Project area (UNHP 2012).
Water vole	*Microtus richardsoni*								NSS3			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Western banded gecko	*Coleonyx variegatus*				SS							The predicted range for the species is outside the Project area (UDWR 2005a).
Western painted turtle	*Chrysemys picta bellii*								NSS4			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Western pearlshell	*Margaritifera falcata*								NSSU			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Western silvery minnow	*Hybognathus argyritis*								NSS2			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).
Western threadsnake	*Leptotyphlops humilis*				SS							The predicted range for the species is outside the Project area (UDWR 2005a).
White heel splitter	*Lasmigona complanata*								NSSU			The predicted range for the species is outside the Project area (WGFD 2010a). The species is not known to occur in the Project area (WYNDD 2011).

TABLE J-11
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Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species[2, 3]			State Sensitive Species[4]			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
White-tailed ptarmigan	*Lagopus leucura*					MIS						An introduced population of the species exists in the northern portion of Ashley National Forest, west of Flaming Gorge. However, the predicted range for the species is outside the Project area (Birds of North America 2005). The species is not known to occur in the Project area (UNHP 2012; WYNDD 2011). Additionally, the Project area does not occur in high alpine meadows that are typical of white-tailed ptarmigan habitat (Birds of North America 2005).
Wyoming toad	*Anaxyrus baxteri*	E							NSS1			The predicted range for the species is outside the Project area (WGFD 2010b). The species is not known to occur in the Project area (WYNDD 2011).
Yellow mud turtle	*Kinosternon flavescens*									SC		The species is not known to occur in the Project area (CNHP 2011). The species range does not extend into western Colorado (CDOW 2006).
Yellow-pine chipmunk	*Neotamias amoenus*								NSS4			The predicted range for the species is outside the Project area (WGFD 2010b). The species is not known to occur in the Project area (WYNDD 2011).
Yellowstone cutthroat trout	*Oncorhynchus clarkii bouvieri*				CA				NSS2			The predicted range for the species is outside the Project area (UDWR 2005a; WGFD 2010c). The species is not known to occur in the Project area (UNHP 2012; WYNDD 2011).

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Common Name	Scientific Name	Endangered Species Act	Bureau of Land Management Sensitive Species[1]			U.S. Forest Service Sensitive Species[2, 3]			State Sensitive Species[4]			Rationale
			Wyoming	Colorado	Utah	Ashley National Forest	Manti-La Sal National Forest	Uinta National Forest	Wyoming	Colorado	Utah	
Zebra-tailed lizard	*Callisaurus draconoides*				SS							The predicted range for the species is outside the Project area (UDWR 2005a).

NOTES:
[1]Listed by at least one of the Bureau of Land Management districts
[2]Known habitat in at least one Forest
[3]Management Indicator Species on at least one forest, but no known habitat
[4]Special status species in at least one state

Endangered Species Act
- E = Endangered
- T = Threatened
- C = Candidate
- P = Proposed
- SPC = Species of Concern

Bureau of Land Management
- ✓ = Sensitive species present in district
- CA = Conservation Agreement species
- CN = Candidate species
- SS = BLM Sensitive Species

U.S. Forest Service
- SS = Sensitive Species with known habitat on Forest
- o = Offsite, primarily relates to downstream fish
- MIS = Management Indicator Species

Wyoming
- NSSU = Native Species Status Unknown
- NSS# = Native Species Status – the lower the number, the greater the conservation need; NSS1-NSS4 = Species of Greatest Conservation Need

Colorado
- FE = Federally Endangered
- FT = Federally Threatened
- SE = State Endangered
- ST = State Threatened
- SC = State Special Concern (not a statutory category)

Utah
- S-ESA = Sensitive as a result of being listed under the Endangered Species Act
- CS = Conservation Agreement Species
- SPC = Species of Conservation Concern

Distribution and Habitat Requirements

The known spatial distribution of Barneby ridge-cress has not changed since completion of the 1993 Recovery Plan. Barneby ridge-cress is known from one population with three separate stands endemic to thin limestone caps on ridge lines near Indian Canyon approximately 3 miles south and southwest of the town of Duchesne, Utah (FWS 2011a).

No new information concerning the demography of Barneby ridge-cress is available since FWS listed the species in 1990 and developed the Recovery Plan in 1993. In the Recovery Plan, FWS estimated the species' population at 5,000 individuals on about 500 acres of suitable habitat located entirely on the Ute Indian Tribe's Uintah and Ouray Reservation. Comprehensive surveys of Barneby ridge-cress were conducted in 2010 and 2011. Approximately two-thirds of known suitable habitat was surveyed, and 4,082 plants were counted. By extrapolating out to the rest of the known suitable habitat, the total population for the species was estimated to be approximately 6,000 individuals across approximately 500 acres of suitable habitat (FWS 2011a).

The species is a rare local endemic occurring solely on Tribal lands and access to the species and its habitat is limited. The species' plant community is comprised of small-statured shrubs and semi-woody cushion plants on infrequently occurring limestone barrens in broader woodlands dominated by Utah juniper (*Juniperus osteosperma*) and pinyon pine (*Pinus edulis*). The limestone substrate where Barneby ridge-cress grows has the appearance of highly weathered concrete. This particular limestone barren is an unnamed geological stratum of the geologic Uinta Formation. The species is restricted to that stratum. Barneby ridge-cress is an edaphically (soil related) controlled endemic of the Uinta Basin (Welsh et al. 2003).

Primary Threats to Survival

The primary threat to the survival of Barneby ridge-cress is damage due to oil and gas exploration. Ridge-cress habitat is underlain by petroleum deposits with current and potential future development, and the potential for significant loss from petroleum resource development is high. The listing of the species as endangered has made huge strides in protecting its habitat from oil and gas development activities (FWS 1993). The recovery plan cites Barneby ridge-cress as being threatened by vehicular impacts due to its narrow distribution along ridgelines. Since the species' listing in 1990, recreational (trail riding and hunting related) off-highway vehicle (OHV) use in the species' occupied habitat has been very light due in large part to Tribal control and active policing to prevent trespass. Therefore, FWS considers the threat of recreational OHV to be low throughout the species' range. Listing under the ESA provides the Tribe an increased awareness of the species' vulnerability and provides the ability to further protect the species by reinforcing laws and regulations pertaining to violations of trespass laws (FWS 2011a). Livestock grazing was reported as a concern in the recovery plan for adverse impact on Barneby ridge-cress and its habitat. However, grazing is no longer allowed in Barneby ridge-cress habitat. Thus, although we do not know how much livestock grazing affected the species historically, we no longer consider livestock grazing to be a threat (FWS 2011a).

Occurrence in the Project Area

The single known population of Barneby ridge-cress is on the Uintah and Ouray Indian Reservation near the city of Duchesne, Utah. The location is near Indian Creek and Indian Canyon, approximately 3 miles south of Starvation Reservoir (FWS 1993). The entirety of this population is approximately 3 miles from the junction of Links U402, U430, and U431.

Cisco Milkvetch (*Astragalus sabulosus* var. *sabulosus*) – FWS: Petitioned; BLM: Utah

Regulatory Status

The full species (*Astragalus sabulosus*) was considered a category 2 candidate for listing in 1993 (58 FR 51152); however, the species was never listed. In 2009, the species was petitioned for listing and in their 90-day finding, the FWS determined listing may be warranted (74 FR 41656). With that determination, the FWS began a status review to determine if listing is warranted. If it is determined that listing is warranted, the species will become a candidate.

Taxonomy and Life History

The Cisco milkvetch is a member of the pea family (*Fabaceae*) (Utah Native Plant Society [UNPS] 2012). The species was split into two varieties (*sabulosus* and *vehiculus*) in 1998 (Franklin 2005).

Cisco milkvetch have coarse leaves and pods with a stiff papery to leathery texture. Flowers are yellowish to whitish and approximately 1.25 inches in length. The variety *vehiculus* has flowers that are smaller and less yellow. The variety flowers from late March through early May (UNPS 2012).

Distribution and Habitat Requirements

This variety of Cisco milkvetch is endemic to the Grand River Valley in Grand County, Utah. It is only known to occur in the 20 miles between Cisco Mesa and Whipsaw Flat (Franklin 2005; UNPS 2012). The species is known from five locations occupying a total area of approximately 800 acres (74 FR 41656). Four extant populations of this variety are known from surveys conducted in 1995 and 1997. Two populations are in Whipsaw Flat south of Thompson, one population is along Bread Knolls, and one population approximately 4 miles southwest of Cisco (Utah Natural Heritage PRogram [UNHP] 2012). The Cisco milkvetch occurs on the Mancos Shale Formation in salt desert shrub communities from 4,250 to 5,250 feet (UNPS 2012). The species is highly dependent on sufficient moisture at the right time for seeds to germinate (Franklin 2005).

Primary Threats to Survival

Potential threats include off-road vehicles, energy development, oil and gas development, uranium mining, and natural gas development. In addition to the direct impacts these developments may have, the vibrations created may have an impact on the soils and plants in the vicinity of roads and developments (74 FR 41656).

Occurrence in the Project Area

All known occurrences of this variety lie within 4 miles of Link U490. Two occurrences are within 1-mile of Link U490. One is along Interstate 70 (I-70) approximately 2 miles west of Cisco. This occurrence is based on a museum collection from 1890, but surveys conducted in 1988 and 1995 failed to find any Cisco milkvetch present. The second occurrence is 4 miles southwest of Cisco along I-70. Surveys conducted in 1997 found 210 individuals occupying 5 acres (UNHP 2012).

Clay Phacelia (*Phacelia argillacea*) – FWS: Endangered

Regulatory Status

Clay phacelia was first proposed for listing on June 16, 1976, along with 1,700 other vascular plant species (41 FR 24523). On June 28, 1978, the FWS published a final rule listing clay phacelia as an endangered species (43 FR 44810). No critical habitat has been designated.

The recovery plan for clay phacelia was published in 1982 (FWS 1982). The objective of the plan is to establish a self-sustaining population of 2,000 to 3,000 individuals on 120 acres of protected habitat and possibly establish at least one new population. Once the objective is achieved, clay phacelia can possibly be downlisted, depending on the nature of the existing threats to the species. The FWS is currently re-evaluating recovery goals for clay phacelia to create more meaningful, measurable, and achievable recovery criteria (FWS et al. 2013).

Taxonomy and Life History

Clay phacelia is a member of the waterleaf family (*Hydrophyllaceae*) (UDWR 2005b). It was first collected in 1883 by Marcus E. Jones at Pleasant Valley Junction in Wasatch County, Utah and again in 1894 at Clear Creek near Soldier Summit in Utah County in 1894. However, Jones failed to recognize it as a new species. It was rediscovered in 1971 by N.D. Atwood who identified it as the closely related glandular phacelia (*Phacelia glandulosa*). However, on further examination, substantial differences were seen in the Utah populations and they were thus given unique species status (FWS 1982).

Clay phacelia is a winter annual that reaches heights of 12 inches. The stems are finely pubescent with pinnate leaves. The inflorescence is a compound cyme with blue to violet flowers. It germinates in the fall if there is significant moisture, but can germinate in the spring if conditions in fall are not wet enough. Flowering takes place in late May to early June and fruits are produced from mid-June to September and persist up to 2 weeks. Each fruit can contain up to four seeds. Pollen is primarily spread by wind and possibly bees (FWS 1982).

Dispersed seeds lodge in cracks or crevices on the shale-covered slopes where they germinate when conditions are suitable. Basal rosettes are formed by early to mid-October and they then over-winter growing slowly underneath the snow pack. Where they occur, the extant populations of clay phacelia cover only 3 to 5 percent of the slope's surface in scattered patches (FWS 1982). Overall vegetative cover is generally around 10 percent in habitat for the species (NatureServe 2013).

Distribution and Habitat Requirements

Historically, clay phacelia was known only from the two locations recorded by Jones in Pleasant Valley and Clear Creek. However, later searches were only able to locate the remaining population at Clear Creek near Soldier Summit in Utah County. The Pleasant Valley population remains to be rediscovered or has been eradicated since its initial discovery (UDWR 2005b).

In 1977, only nine plants were known to exist. This may have been occasioned by the construction of a railroad line directly through the population. By 1980 only four plants were left at the site due to trampling by sheep. The population was fenced off and the land was purchased by The Nature Conservancy. In 1989, a search turned up two subpopulations on open slopes approximately 5 miles west-northwest of the Clear Creek site. Today the species is stable but the remaining population totals only about 200 individuals. Clay phacelia is only found in the Spanish Fork Canyon of Utah (FWS 1982).

Clay phacelia grows on steep slopes in sparsely populated juniper-pinyon and mountain brush communities (Welsh et al. 1975). The slopes are very steep; a 70 percent grade at the largest population. The substrate is described as shaley clay colluviums of the Green River Formation (Atwood 1975). As a result, the loose shale on the surface is continually sloughing down the face of the slopes. The majority of the plants grow on slopes facing west or southeast, at elevations between 6,000 and 7,000 feet. Populations are not likely to exist at elevations greater than 8,000 feet above mean sea level (UNPS 1989). Habitat areas are free of snow at least once during the winter and are typically dry in early spring. Associated vegetation includes skunkbush sumac (*Rush trilobata*) and Juneberry (*Amerlanchier alnifolia*)

with a degraded sagebrush steppe at the base of the slope (FWS 1982). Overall, vegetation cover is generally around 10 percent in habitat for the species (NatureServe 2013).

Suitable habitat for clay phacelia has been modeled in the Project area by the USFS in the vicinity of known locations and a reintroduction sites. The habitat model for the species uses the parameters of slope, aspect, elevation, vegetative cover, geology, precipitation, and soil pH reported in literature for the species.

Primary Threats to Survival

The primary threat to the survival of clay phacelia is the vulnerability that results from such a drastically small population size. In populations with less than 1,000 individuals, demographic uncertainties can play a significant role in extinction probability. The species is a winter annual with habitat that faces restriction by climactic changes and soil factors. Destruction of portions of the population and modification of potential habitat has severely jeopardized clay phacelia. The Denver and Rio Grande Western Railroad and its associated maintenance road bisect the only known population. The railroad company is aware of the plant and has a positive attitude toward its protection. In addition, sheep moving through the area have trampled some of the plants and squirrels have caused considerable damage by grazing on portions of the plant (FWS 1982).

Occurrence in the Project Area

Clay phacelia is known to occur in the western portion of the Project area in Utah County. It has a population estimated at less than 200 individuals, all of which are known to occur in Spanish Fork Canyon of Utah. The species has been located in the vicinity of Tucker and down-canyon near Mill Fork (UDWR 2005b). Known occurrences of the species are in the Project area along Links U539 and U530. Twelve reintroduction sites for clay phacelia are in Spanish Fork Canyon, and the USGS has collected and cultivated clay phacelia seeds in a greenhouse for use in reintroduction of the species at four of these sites. The USFS has documented emergence of plants at three of the four reintroduction sites; however, only one individual has been observed as having completed the biennial life cycle and successfully producing seeds.

Clay Reed-mustard (*Schoenocrambe argillacea*) – FWS: Threatened

Regulatory Status

Clay reed-mustard was first listed as a candidate to add to the list of endangered species on December 15, 1980 (45 FR 82480). Beginning on October 13, 1983 and each successive year, the FWS made 1-year findings that the petition to list the species was warranted but precluded by other listing actions of higher priority. On April 12, 1991, the FWS published a proposed rule proposing to list clay reed-mustard as an endangered species (56 FR 14910). Surveys for the species conducted after the proposal date revealed significant additional populations of the species, possibly twice as large as previously thought. Taking the new survey results into account, the FWS found it more appropriate to list clay reed-mustard as a threatened species (57 FR 1398). No critical habitat has been designated because the benefits of publicizing critical habitat are outweighed by the added dangers (57 FR 1398). The FWS initiated a 5-year review on October 6, 2008 (73 FR 58261). The FWS concluded the 5-year review and published the summary and evaluation for the species on July 11, 2011. The FWS concluded that clay reed-mustard should retain its classification as a threatened species throughout its range, primarily due to threats associated with oil and gas development.

The recovery plan for the Utah reed-mustards was published in 1994. The goal of the plan is to delist clay reed-mustard. Delisting criteria described in the plan includes: (1) discovering or establishing a minimum

of ten separate populations with 2,000 or more individuals per population; and (2) documenting or establishing formal land management designations that would provide for long-term protection on undisturbed habitat for the above ten populations (FWS 1994a).

Taxonomy and Life History

Clay reed-mustard, also known as clay *Schoenocrambe* and the Uinta Basin plainsmustard (UDWR 2005b), was discovered by Duane Atwood in 1976 on a site in the southern portion of the Uinta Basin in Uintah County, Utah, approximately 1 mile from the discovery site of the shrubby reed-mustard (*Schoenocrambe suffrutescens*). It was originally described as *Thelypodiopsis argillacea*. In 1982, the genus was changed to *Schoenocrambe* by Rollins after evaluating the cruciferous genera that also includes the endangered shrubby reed-mustard (*Schoenocrambe suffretescens*) and Barneby reed-mustard (*Schoenocrambe barnebyi*) (FWS 1994a).

Clay reed-mustard is a perennial, herbaceous plant that reaches 1 foot in height. It has a wood root crown. It has alternate leaves arranged on the stem and are connected without a petiole. The flowers are pale lavender to white with prominent purple veins and grow to half an inch in length in a raceme of 3 to 20 flowers at the end of the plant's leafy stem (FWS 1994a).

All three species of reed-mustards flower from April to May with fruit appearing May to June. Reproduction is sexual and pollination is aided by insects. Little is known about the long-term population dynamics, disease, parasitism, effect of grazing, competition, and viability of any of the species (FWS 1994a).

Distribution and Habitat Requirements

Six populations of clay reed-mustard are known within a 19-mile range from the west side of the Green River to the east side of Willow Creek in southwestern Uintah County, Utah. One population is known from the eastern slopes of Big Pack Mountain; one in Broome Canyon to the east; a third is along the west slopes of Wild Horse Bench; a fourth is immediately north in Long Bottom; a fifth is immediately north of Long Bottom called King's Bottom; and the sixth population is along the slopes of the canyons about Ray's Bottom, on the west side of the Green River. The total population is estimated from approximately 5,300 to 7,450 plants (FWS 2011e).

Clay reed-mustard grows in mixed salt desert shrub communities, generally on north-facing slopes composed of clay soils rich with gypsum overlain with sandstone talus. The sandstone talus of the clay reed-mustard is derived from a mixture of shales and sandstones from the zone of contact between the Uinta and Green River geologic formations. Populations grown on protected sites are generally more robust than those that grow on exposed surfaces (FWS 1994a). Associated vegetation includes crispleaf buckwheat (*Eriogonum corymbosum*), Torrey's jointfir (*Ephedra torreyana*), shadscale, valley saltbush, and saline wildrye (UDWR 2005b).

Primary Threats to Survival

Primary threats to clay reed-mustard include habitat disruption associated with energy development and off-road vehicle use. Most known populations are on federal lands that are leased for oil and gas energy reserves and petroleum deposits that are being developed in adjacent habitats. In addition, the entire range of the species is underlain by oil shale (FWS 1994a). Most sites of clay reed-mustard contain less than 200 individuals, which increases the chance that populations may be lost as a result of natural variation in population numbers and less genetic diversity thus making the populations more susceptible to natural disasters (57 FR 1398-1403).

Occurrence in the Project Area

Clay reed-mustard inhabits areas in western Uintah County, Utah. There are six distinct populations. Two alternative routes (Links U117 and U400) cross a portion of the King's Bottom population and are within 1 mile of the Ray's Bottom population (FWS 2011e).

Deseret Milkvetch (*Astragalus desereticus*) – FWS: Threatened

Regulatory Status

Deseret milkvetch was first addressed in the July 1, 1975, indicating that the species was probably extinct (40 FR 27823). On June 16, 1976, the FWS published a proposed rule to designate 1,700 plants, including Deseret milk-vetch, as endangered species (41 FR 24523). On December 10, 1979, the FWS withdrew the proposal, because it was not finalized within the 2-year time limit from the initial publication in the *Federal Register* (44 FR 70796). In the December 15, 1980 notice of review, Deseret milkvetch was listed as a category 1 species, indicating that sufficient information on biological vulnerability and threats to support preparation of listing proposals was available. It also was noted that it was believed that Deseret milkvetch may have recently become extinct. In 1981, a population was discovered that led to a relisting as a Category 2 candidate, for which data was not sufficient to support issuance of a listing proposal (48 FR 53640). Surveys in 1990 and 1991 resulted in additional information that reinstated the Category 1 candidate assignment in 1993 (58 FR 51144). The species was eventually listed as a threatened species on October 20, 1999 (64 FR 56590).

On January 25, 2007, an advanced notice of proposed rulemaking was released announcing the intent to remove Deseret milkvetch from the federal list of endangered and threatened plants. Proposed delisting is occurring because threats to the species at the time of listing are not as significant as earlier believed and are managed such that the species is not likely to become in danger of extinction throughout all or a significant portion of its range in the foreseeable future (72 FR 3379). A 5-year review was initiated on April 18, 2007 (72 FR 19549). As of 2011, no critical habitat has been designated, no recovery plan has been published, and no official delisting has occurred for Deseret milkvetch. FWS did not find any threats to the species during the 5-year review process and therefore recommended delisting the species. However the FWS also noted that a single project, such as a major transmission line project, in or affecting occupied habitat could elevate the threats to the species to the point that it will not be able to be delisted (FWS 2011f).

Taxonomy and Life History

Deseret milkvetch is a member of the legume family (*Leguminosae, Fabaceae*). It was first collected near Indianola, Utah in 1893 and 1909 by Marcus E. Jones and Ivar Tidestrom, respectively. It was not described as a separate species until 1964 by Rupert Barneby using specimens from various herbaria. At that time, effort was made to find the original populations from which Jones and Tidestrom collected specimens, but they were unsuccessful. The species was believed to be extinct until found near Birdseye, Utah in 1981. This population is the only current known occurrence (64 FR 56590).

Deseret milkvetch is a perennial, herbaceous species that is nearly stemless and can reach a height of 6 inches. The flowers are typical of the bean family and are white with a purple tip on the keel. The seed pods are just under an inch long, hairy, and contain 14 to 16 seeds (64 FR 56590). Because the milkvetch is a short-lived perennial, it has no means of vegetative propagation. The survival of the species depends on successful reproduction and germination of seeds annually. Growth and reproduction begin after the annual snow melt, by mid-April (NatureServe 2008a). Flowering and seed setting occurs in May and June. Like most species in the pea family, the flower of Deseret milkvetch is primarily designed to be pollinated by bees. The seeds lay dormant over the winter and germinate in the spring when favorable conditions return (64 FR 56590).

Distribution and Habitat Requirements

Deseret milkvetch is endemic to central Utah and known from only one location on the east side of the Thistle Creek Valley near the town of Birdseye in Utah County (UDWR 2005b). The population consists of an estimated 86,775 to 98,818 individuals growing on 146 acres on both state and privately owned land (FWS 2011f). The known location of Deseret milkvetch is in an open to sparse juniper-sagebrush community on open, steep, naturally disturbed south and west (rarely north) facing slopes of sandy-gravelly soils of the Moroni Formation (UDWR 2005b). On west-facing road cuts, the individuals tend to grow larger. The vegetation is dominated by pinyon pine and Utah juniper. Other associated vegetation includes sagebrush, scrub oak, Indian ricegrass, antelope bitterbrush, and plateau beardtongue (*Penstemon scariosus*) (64 FR 56590).

Primary Threats to Survival

The primary threats to the survival of Deseret milkvetch are residential development, highway widening, and livestock grazing and trampling. The development of real estate adjacent to the single known population poses several threats. The construction could eliminate habitat or interfere with the reproductive success of the species. Increased real estate development also would increase recreational activities that could ultimately lead to decreased milk-vetch habitat. In addition, the limited population size makes the species more susceptible to dangers resulting from limited genetic diversity (64 FR 56590).

Although the distribution is still small and restricted, evidence shows that there has been little to no habitat disturbance in recent years and that there are no foreseeable potential threats to the State-owned portion of the species' range. Only one house has been built on private property within the species' range, affecting less than 1 percent of occupied habitat. As of 2006, there were no plans for highway widening to occur within the range of the species. Livestock grazing is being managed by the UDWR, reducing the threat of trampling of vital habitat (72 FR 3379).

Occurrence in the Project Area

Deseret milkvetch is known to occur in the Project area in Utah County. It has been identified on the east side of Thistle Creek Valley near the town of Birdseye (UDWR 2005b). Link U621 is within 1 mile of the known Deseret milkvetch population.

Jones' Cycladenia (*Cycladenia humilis* var. *jonesii*)–FWS: Threatened

Regulatory Status

Jones' cycladenia was proposed for listing on January 10, 1985 (50 FR 1247-1251). On May 5, 1986, the FWS listed Jones' cycladenia as a threatened species (51 FR 16526-16530).

Critical habitat has not been designated for Jones' cycladenia. FWS has not finalized or approved a comprehensive recovery plan for the species but a recovery outline was published in December 2008 (FWS 2008c). The recovery outline is intended to guide recovery efforts and inform consultation and permitting activities until a comprehensive recovery plan for the species has been finalized and approved.

Taxonomy and Life History

The genus *Cycladenia* consists of one species *Cycladenia humilis* treated as having two varieties in California (var. *humilis*, var. *venusta*) (Hickman 1993) and a third variety, Jones' cycladenia (*Cycladenia humilis* var. *jonesii*) found in Utah and Arizona. The closest taxonomic relative to Jones' cycladenia is thought to be *Mandevilla*, a neotropical genus (FWS 2008c).

Jones' cycladenia is a long-lived herbaceous perennial in the Dogbane family (*Apocynaceae*) that grows 4 to 6 inches (10 to 15 centimeters) tall. It has orbicular wide-oval or elliptical leaves and produces pink or rose-colored, trumpet-shaped showers that resemble small morning glories from mid-April to early June (FWS 2008c).

Jones' cycladenia is rhizomatous (FWS 2008c). It overwinters as subterranean rhizomes (roots). Several to a hundred above-ground stems (or ramets) could be a single genetic individual (or genet) (FWS 2008c). Depending on the location, flowering and fruiting occurs from mid-May through June.

Little to no information about age of individual plants, years to reproductive adulthood, survivorship, mortality, or fecundity rates is available. Fruit and seed production is believed extremely limited (FWS 2008c). Its possible pollinators may have been lost or may be migratory and appear episodically (FWS 2008c). In 1992, enzyme electrophoresis research determined that clones do not extend more than 10 meters in any direction. Heterozygosity was low, which suggested inbreeding or population sub-structuring. Genetic variation was great between separated populations (FWS 2008c).

Distribution and Habitat Requirements

Jones' cycladenia occurs between 4,390 to 6,000 feet (1,338 to 1,829 meters) in plant communities of mixed desert scrub, juniper, or wild buckwheat-Mormon tea. It is found on gypsiferous, saline soils of Cutler, Summerville, and Chinle Formations (FWS 2008c). Populations are found on all aspects and on slopes that range from moderate to steep (FWS 2008d).

Primary Threats to Survival

At the time of listing, Jones' cycladenia was known from three sites with low numbers. It was thought to be a Tertiary relict, poorly adapted to the present-day arid climatic regime. Jones' cycladenia's ecosystem was thought fragile, easily degraded, and slow to recover (51 FR 16526-16530). Ongoing and potential anthropogenic impacts on habitat include OHV use; oil, gas, and mineral exploration including uranium mining and tar sands; and livestock grazing (although the rule notes the probability of grazing causing serious damage was low) (51 FR 16526-16530). Habitat disturbance was thought to be reducing seedling establishment. Jones' cycladenia was also at risk due to inadequate state and federal regulatory mechanisms (FWS 2008c).

The variety's threatened status has prompted federal land managers to implement protective measures to limit impacts from OHV and mountain bike use, cattle grazing, and extractive activities. While these threats have been managed to reduce anthropogenic impacts, these issues remain an ongoing and long-term concern. Specifically, mountain biking and OHV use occurs near the Moab and San Rafael complexes; cattle grazing occurs at sites in the San Rafael complex; and uranium mining and tar sands extraction are foreseeable threats in both the San Rafael and Greater Circle Cliffs complex (both complexes are in Designated Special Tar Sands Areas) (FWS 2008c).

Since listing, a number of other biological limiting factors have been revealed. Preliminary research (1988 to 1993) has shown the plant has low fruit production and seed set, likely due to a complicated pollination system and inadequate pollinator abundance (i.e., pollinators may have been lost or may be migratory and appear episodically). No seedling germination events have been documented (FWS 2008c). Genetic research at San Rafael (the Spotted Wolf Canyon site), Moab (two separate sites at Onion Creek and Castle Valley), and Greater Circle Cliffs complexes (one site at Deer Point, one site at Silver Falls Canyon, and one site at Purple Hills) indicates these sites of Jones' cycladenia are genetically distinct and not inbred, but may face other genetic limitations, such as genetic bottlenecking or genetic drift. Several researchers have concluded that an ongoing lack of population recruitment may result in a permanent loss of genetically important individuals or occupied sites. The species' fractured distribution could further

complicate issues associated with limited natural reproduction, dispersal constraints, and genetic risks (FWS 2008c).

As a Tertiary relict, Jones' cycladenia may be affected by global climate change. It is very likely that hot extremes, heat waves, and heavy precipitation will increase in frequency (Intergovernmental Panel on Climate Change 2007). Increased temperatures could result in the need for the species to colonize cooler, higher elevation sites (FWS 2008c).

Other factors reported since the time of listing include, natural predation and relations to fragile cryptobiotic crusts in some locations (FWS 2008c).

Occurrence in the Project Area

The species has not been recorded north of Interstate 80 in Utah. Heritage data did not include any occurrences of the species within 10 miles of alternative routes (Colorado Natural Heritage Program [CNHP] 2011; UNHP 2012; Wyoming Natural Diversity Database [WYNDD] 2011). The BLM Price Field Office conducted a study in 2012 to document distribution, identify habitat requirements and model the extent of suitable habitat of the species (Sansom and Elliott 2012). The results of the study indicated potentially suitable habitat for the species could be present along Links U727, U728, U729, U730, U732, U733 and U734 in Emery County, Utah.

Pariette Cactus (*Sclerocactus brevispinus*) – FWS: Threatened

Regulatory Status

Pariette cactus was listed as threatened under the ESA on October 11, 1979, based primarily on threats of over-collection and habitat destruction (44 FR 58868). At that time, it was listed as part of *Sclerocactus* complex of three species: Pariette cactus (*Sclerocactus brevispinus*), Colorado hookless cactus (*Sclerocactus glaucus*), and Uinta Basin hookless cactus (*Sclerocactus wetlandicus*). In 2006, a petition was filed to remove the *Sclerocactus* complex from the list of threatened plants but after a 90-day review, the petition was denied, and the status of these species remained unchanged (71 FR 75215). On September 18, 2007, the FWS initiated a 12-month petition to change the taxonomy of the threatened *Sclerocactus* complex to three distinct species to reflect the taxonomy generally accepted in scientific literature. Because all three species were once considered part of the *Sclerocactus* complex when the species was listed as threatened, all would remain listed as threatened under the new taxonomic status. In the same petition, the FWS also proposed to upgrade Pariette cactus to endangered status (72 FR 53211). On March 28, 2008, a 5-year review was released that determined that upgrading Pariette cactus from threatened to endangered was warranted but was precluded by higher priority actions. The FWS officially recognized the taxonomic revision in September 2009 and listed each species as threatened, independent of the other species (74 FR 47112–47117).

A recovery outline for Pariette cactus was published in April 2010. No critical habitat for Pariette cactus has been designated (72 FR 75215). However, the FWS and BLM are currently working to identify core conservation areas and develop management recommendations to ensure that *Sclerocactus* species can be recovered, especially in light of potential energy development projects that could increase the level of development in *Sclerocactus* habitat and across the species range. Core areas are based on pollinator travel distance and are designed to provide habitat connectivity between populations and individuals.

Taxonomy and Life History

Pariette cactus has had an involved taxonomic history. Individuals in the *Sclerocactus* complex were first collected by Schumann in 1898 and initially described as *Echinocactus glaucus.* In 1917, considering the Schumann publication to be illegitimate, Rydberg described the species as *Echinocactus subglaucus*. In

1925, Purpus treated the species as a variety of Whipple's fishhook cactus (*Echinocactus whipplei* var. *glaucus)*. By 1939, the species was first placed in the genus *Sclerocactus* as *Sclerocactus franklinii* (Evans 1939). In 1966, Benson assigned six species to the *Sclerocactus* genus and noted that *S. glaucus* was distinguished from others in the genus by a large unhooked central spine and noticeably smaller seeds (Benson 1966). In 1972, Arp changed the genus to *Pediocactus*, leading to an assignment of *Pediocactus glaucus* (Arp 1972). In 1981, the species was restored to Benson's concept of *Sclerocactus* (Heil et al. 1981) and re-established as *Sclerocactus glaucus* in the taxonomic literature (FWS 1990a).

Sclerocactus glaucus remained the accepted name until revisions to the taxonomy of the Uinta Basin hookless cactus in 1989 resulted in three distinct species, once part of the *Sclerocactus* complex. This reclassification was based on genetic studies, common garden experiments (Welsh et al. 2003), distribution, and a re-evaluation of the morphological characteristics. The FWS officially recognized the taxonomic revision in September 2009 and listed each species as threatened independent of the other species (74 FR 47112–47117).

Pariette cactus is a morphologically unique *Sclerocactus*. It is much smaller (less than 3.1 inches tall) and retains the vegetative characteristics of juvenile *Sclerocactus wetlandicus* individuals in adult flowering plants (72 FR 53211). It has spheric and unbranched stems, short spines, and small pink flowers. Flowers also bloom in late April to May but the species produces green to tan fruits, sometime suffused with pink. The seeds are small, black, and convex (Flora of North America Editorial Committee 1993+).

Although no long-term demographic data is available, it is believed that the species may live for 10 to 20 years in good conditions. Populations range from 1 to more than 1,000 individuals with a wide range of ages. Known predators include the cactus borer beetle and rodents (FWS 1990a).

Distribution and Habitat Requirements

The known distribution of the *Sclerocactus* complex includes federal, state, tribal, and private lands in Utah (Uintah, Duchesne, and Carbon counties) and Colorado (Mesa, Delta, Garfield, and Montrose counties). At the time of listing, eight populations of the *Sclerocactus* complex were known to occur in five counties in western Colorado and eastern Utah. Since that time, two small outlier populations near Gateway, Colorado, and Bonanza, Utah have been identified. Ninety percent of the total population of the three species occurs on BLM-administered lands (FWS 1990a). Because the specific distribution and habitat requirements vary for the three species, they are described separately.

Pariette cactus occurs only in the clay badlands of Pariette Draw in the central Uinta Basin south of Myton, Utah, which gradates into *Sclerocactus wetlandicus* near the mouth of Pariette Draw south of Ouray, Utah (FWS 1990a). The species is restricted to only one known population in an area about 10 miles long by 3 miles wide along the Duchesne-Uintah County boundary. The population is on BLM, Ute Tribe, State of Utah, and private lands. The total species population is estimated to be about 8,000 individuals on 18,000 acres. In a 1985 species inventory, 3,795 individuals were located on approximately 15,000 acres of BLM-administered land and minor amounts of state and private lands. BLM estimated this population represented 75 percent of the total population on BLM-administered lands. Based on that information, the estimated 1985 population of Pariette cactus on BLM-administered land was approximately 5,000 individuals (72 FR 75215).

Pariette cactus grows on fine soils in clay badlands derived from the Uinta formation. It inhabits a low hilly terrain overlain with gravel and stone (UDWR 2005b). The habitat is a sparsely vegetated desert shrubland dominated by saltbush, rabbitbrush, and horsebrush. Approximately 72 percent of the range occurs in the approved Castle Pak/Eightmile Flat oil and gas field in the Project area and the pending Gasco Uinta Basin Natural Gas Field Development project (FWS 2008e). The remaining portion of the range contains wells drilled in the Sand Wash and Greater Boundary Units (72 FR 75215).

Primary Threats to Survival

The primary threats to the survival of the *Sclerocactus* complex stem from mineral and energy development, water development, and collection. Most of the range of the species is in existing oil and gas fields or undeveloped oil and gas lease areas. This activity has the potential to devastate local populations. The cactus is also sought out by professional and amateur cactus growers for its beautiful flowers. Because of its natural scarcity, it is a prized species for collectors and therefore could be highly threatened by the unregulated commercial trade of those plants collected from the wild (FWS 1990a). An important natural threat to *S. brevispinus* is genetic swamping from the more widespread *S. wetlandicus*, near the crossing of habitat at the mouth of the Pariette Draw (Flora of North America Editorial Committee 1993+).

Occurrence in the Project Area

The entire population of Pariette cactus is believed to be confined to a 30-square mile area around the Pariette Draw. This area lies within 5 miles of Link U402. A 2007 study located 30 occurrences of the species within 1 mile of the proposed centerline of Link U402 in the vicinity of Pariette Draw.

San Rafael Cactus (*Pediocactus despainii*) – FWS: Endangered

Regulatory Status

On December 15, 1980, the FWS published a notice of review for plants that included San Rafael cactus as a candidate for listing (45 FR 82479). Amendments to the ESA in 1982 required that a finding must be made as to whether a requested action is warranted, not warranted, or warranted but precluded by other activity within 12 months of the initial intent to list. All petitions pending as of October 12, 1982, were treated as having been received on that date. Each successive year after the 1982 amendments, the FWS released notice that an endangered determination for the San Rafael cactus was warranted but precluded by other listing activity. The final rule to list the species as endangered was published on September 16, 1987 (52 FR 34914). Critical habitat has not been designated as to prevent the escalation of illegal collection of the plant.

A draft recovery plan for the San Rafael and Winkler cactus was published in 1995. In 2007, a recovery outline for the two species was released, indicating the final approved plan was expected in September 2009 (FWS 2007a). However, as of 2011, the final plan had not been released. Due to the species' small, restricted populations and desirability to collectors, the species is vulnerable to over-collection, making it unlikely that it will be safely removed from the protection of the ESA in the foreseeable future. Thus, the object of the draft recovery plan is to downlist the species to threatened and this can be considered when (1) a minimum of five additional separate populations with 2,000 or more individuals per population are discovered; (2) formal land management designations and management plans that would provide long-term protection on undisturbed habitat for each population are implemented; (3) viable populations of the species are maintained by ensuring the protection of the current populations and occupied habitat for both species through enforcing the conservation provisions of Sections 7 and 9 of the ESA (FWS 1995a).

Taxonomy and Life History

San Rafael cactus is a member of the cactus family (*Cactaceae*). It was discovered by Kim Despain in 1978 and described by Welsh and Goodrich (Welsh and Goodrich 1980). It also can be known as Despain's footcactus or Despain pincushion cactus (UDWR 2005b). The genus *Pediocactus* contains eight species endemic to the Colorado Plateau region of Utah, Colorado, New Mexico, and Arizona. All eight of the species are either listed as endangered or are being considered for listing. It is believed the seven disjunct species are relict species of a once more widespread genus that was fragmented by climate change (52 FR 34914).

San Rafael cactus is a small, ovoid, leafless, stem succulent. The cactus is distinguished from other members of the genus by its larger stem, hairless areoles, and bronze tint (52 FR 34914). There is generally only one stem that reaches 2.5 inches tall and 3.7 inches in diameter. The stem lacks a central spine, but white radial spines are common, numbering 9 to 13. The flowers grow up to 1 inch and can be yellow-bronze, peach-bronze, or pink with a purple midstripe. The fruit is initially green turning to reddish-brown with age. The kidney-shaped seeds are shiny and black (FWS 1995a).

Flowering occurs from April to May with fruits produced in May to June but can vary in accordance with temperature and moisture conditions. Reproduction is sexual and pollination is believed to be done by wild bees of the family *Halictidae* (FWS 1995a). The San Rafael cactus has been observed to shrink underground for several months to a year during dry or cold seasons. It is only noticeable for a short amount of time in the spring when it is in bloom. These habits make the cactus especially difficult to locate (52 FR 34914).

Distribution and Habitat Requirements

As of 1995, there are three known populations of the San Rafael cactus with an estimated total population of 20,000 individuals. Most of the plants occur on lands managed by the BLM. It is entirely restricted to the San Rafael Swell of Utah (central Emery County). One population exists in the north-central portion of the San Rafael Swell, north of the San Rafael River. The second population occurs in the south-central portion of the San Rafael Swell, south of I-70, and the third population is found in the western portion of the swell, near I-70 (FWS 1995a).

San Rafael cactus grows in fine textured, mildly alkaline soils rich in calcium derived from limestone substrates of the Carmel Formation and the Sinbad member of the Moenkopi formation. The species is most commonly found on benches, hill tops, and gentle slopes with a southern exposure. It grows in open woodland of scattered Utah juniper and pinyon pine with an understory of shrubs and grasses (FWS 1995a).

Primary Threats to Survival

There are three primary threats to the survival of San Rafael cactus: over-collection, trampling, and destruction of habitat for access to oil and gas reserves. In addition, the small size of the population and limited range render the species extremely vulnerable to small disturbances. Although the San Rafael cactus can be difficult to cultivate, it is a highly prized, rare species desired in cactus collections. Cactus collectors are very active in the Colorado Plateau. Collection is forbidden but the remoteness of the habitat makes collection difficult to control (FWS 1995a).

San Rafael cactus habitat is vulnerable to destruction caused by off-road vehicle use and livestock. The plant itself can be shrunken into the ground during some portions of the year, which provides some natural protection from trampling. However, the species forms flower buds in the fall at ground level leaving it very vulnerable to surface disturbance and potentially reducing reproductive capacity. The spines of most cacti prevent major damage from grazing, but the size and shortness of spines on the San Rafael cactus provide very little security (FWS 1995a).

The habitat of San Rafael cactus is underlain by bentonite clay, uranium ore deposits, gypsum, petroleum, and other minerals. Future development of these resources has potential for adverse effects on the cactus and associated habitat (FWS 1995a).

Occurrence in the Project Area

San Rafael cactus is known to occur in the central portion of the Project area in Emery and Wayne counties, Utah. It has been identified from the eastern base of Cedar Mountain, southwest to The Wedge and The Red Ledges and south into Cathedral Valley (UDWR 2005b). The species is known to occur in the Project area along Links U728, U729, and U733.

Shrubby Reed-mustard (*Schoenocrambe suffrutescens*) – FWS: Endangered

Regulatory Status

On July 1, 1975, the FWS published a notice that included shrubby reed-mustard as a candidate for listing (41 FR 24523). Amendments to the ESA in 1978 required that all petitions more than 2 years old be withdrawn, but that petitions already more than 2 years old were subject to a 1-year grace period. On December 10, 1979, the FWS withdrew the petition to list the shrubby reed-mustard because it was not finalized within the 1-year grace period (44 FR 70796). The species was once again listed as a candidate species in the December 15, 1980, notice of review. Amendments to the ESA in 1982 required that a finding must be made as to whether a requested action is warranted, not warranted, or warranted but precluded by other activity within 2 years of the intent to list. All petitions pending as of October 12, 1982, were treated as having been received on that date. For each successive year after the 1982 amendments, the FWS released notice that an endangered determination for the shrubby reed-mustard was warranted but precluded by other listing activity. The final rule to list the species as endangered was published on October 6, 1987 (52 FR 37416). In September 1985, approximately 7,360 acres of critical habitat was proposed in the vicinity of Hill Creek in Uintah County (50 FR 36118-36112). No final rule has been issued finalizing designation of critical habitat for the species.

The recovery plan for three Utah reed-mustards was published in 1994. The goal of the plan is to delist or downlist the shrubby reed-mustard. Due to a small total population, vulnerability of the habitat to ongoing and potential oil and gas activity, and unrestricted off-road vehicle use, downlisting and delisting of the shrubby reed-mustard appears unlikely in the near future. However, criteria for downlisting include (1) discovering or establishing a minimum of five separate populations with 2,000 or more individuals per population and (2) document or establish formal land management designations that would provide for long-term protection on undisturbed habitat for the above five populations. The species may be considered for delisting when the above criteria are expanded to ten populations (FWS 1994a). The FWS initiated a 5-year review on October 6, 2008 (73 FR 58261). The 5-year review determined that the species should retain its current listing status (FWS 2010).

Taxonomy and Life History

Shrubby reed-mustard, also known as toad-flax cress, Graham's schoenocrambe, shrubby glaucocarpum, and the Uinta Basin waxfruit, is a member of the mustard (*Brassicaceae*) family (UDWR 2005b). It was first discovered in the Uinta Basin of Uintah County, Utah in 1935 and described by Reed C. Rollins as *Thelypodium suffrutescens*. Following further taxonomic research, in 1938 Rollins described it to the monotypic genus *Glaucocarpum*. By 1992, the name was changed to shrubby reed-mustard (S*choenocrambe suffrutescens*) to complete a morphologically discrete phylogenetic unit of five species that also includes the threatened clay reed-mustard (*S. argillacea*) and endangered Barneby reed-mustard (S*choenocrambe barnebyi*) (57 FR 1398). The genus is under some review and is commonly placed in either *Glaucocarpum* or *Schoenocrambe* (UDWR 2005b).

Shrubby reed-mustard is a perennial, herbaceous plant with multiple, clumped stems that reach 1 foot in height. The leaves are alternately arranged and attached to the stem by a short petiole. The flowers are light yellow or greenish yellow that grow to half an inch, displayed in a raceme of 5 to 20 flowers at the plant's leafy stems (FWS 1994a).

All three species of reed-mustards flower from April to May with fruit appearing May to June. Reproduction is sexual and pollination is aided by insects, primarily several species of bees. Within the raceme, flowers mature closest to the stem first and spread upward. The flowers are most fragrant in the morning and decline as the day progresses. Little is known about the long-term population dynamics, disease, parasitism, effects of grazing, competition, and viability of any of the species (FWS 1994a).

Distribution and Habitat Requirements

Shrubby reed-mustard is confined to localized geological formations of buff-colored calcareous shale of the Green River Formation in the Uinta Basin of eastern Utah (Duchesne and Uintah counties). In 1985, eight parcels of this habitat totaling 7,360 acres were proposed as critical habitat, but the rule was never finalized (50 FR 36118-36112). This area supports the majority of the known populations and appears to be necessary to the continued survival of the species (FWS 1994a).

There are currently seven known populations of shrubby reed-mustard. Four populations lie between Hill Creek and Willow Creek (Big Pack Mountain, Thorn Ranch, Johnson Draw, and Agency Draw) totaling approximately 2,440 individuals). Two populations are on the west side of Hill Creek (Gray Knolls and Dog Knoll) and comprise approximately 320 individuals. A single population exists in Duchesne County approximately 15 miles from the other populations. It is approximately 1.5 miles north of the junction of Nine Mile Creek and Daddy Canyon. This population (Badlands Cliff/Wrinkles Road) has a population of approximately 170 individuals (FWS 2010).

Shrubby reed-mustard occurs in desert-shrub communities with sparse juniper and pinyon pine trees. It grows on clay soils with white shale. In contrast to the other listed *Schoenocrambe* species, the shrubby reed-mustard generally grows on level to moderately sloping round surfaces. The soil is derived from the Evacuation Creek Member of the Green River geological formation at an elevation of 5,400 to 6,000 feet (FWS 1994a).

Primary Threats to Survival

Primary threats to shrubby reed-mustard include threats associated with the oil and gas industry, off-road vehicle use, and small population. All known populations are on federal lands that are leased for oil and gas energy reserves and petroleum deposits being developed in adjacent habitats with the exception of a small portion on Uintah and Ouray Reservation of the Ute Indian tribe. In addition, the entire range of the species is underlain by oil shale. The species is also vulnerable to ground-disturbing activities associated with energy development (FWS 1994a).

Another particular threat to shrubby reed-mustard is association of habitat with commercially valuable native building stone composed of volcanic ash deposited during the prehistoric Uinta Lake during the Eocene epic. Previous commercial stone excavation is believed to have caused the extirpation of a portion of the population near the Big and Little Pack Mountains (50 FR 36118). In addition, there are risks associated with the species having only three small populations that could be devastated by an unpredictable catastrophe such as an extreme weather event (Beacham et al. 2005).

Occurrence in the Project Area

Shrubby reed-mustard is known to occur in the central portion of the Project area in Uintah and Duchesne counties, Utah. The Badlands Cliff/Wrinkles Road population falls within 1 mile of alternative routes.

Uinta Basin Hookless Cactus (*Sclerocactus wetlandicus*) – FWS: Threatened

Regulatory Status

Uinta Basin hookless cactus was listed as threatened under the ESA of 1973 on October 11, 1979, based primarily on threats of over-collection and habitat destruction (44 FR 58868). At that time, it was listed as part of *Sclerocactus* complex of three species: Pariette cactus (*Sclerocactus brevispinus*), Colorado hookless cactus (*Sclerocactus glaucus*), and Uinta Basin hookless cactus (*Sclerocactus wetlandicus*). In 2006, a petition was filed to remove the *Sclerocactus* complex from the list of threatened plants but after a 90-day review, the petition was denied, and the status of these species remained unchanged (71 FR 75215). On September 18, 2007, the FWS initiated a 12-month petition to change the taxonomy of the threatened *Sclerocactus* complex to three distinct species to reflect the taxonomy generally accepted in scientific literature. Because all three species were once considered part of the *Sclerocactus* complex when the species was listed as threatened, all would remain listed as threatened under the new taxonomic status. The FWS officially recognized the taxonomic revision in September 2009 and listed each species as threatened independent of the other species (74 FR 47112–47117).

A recovery outline for the *Sclerocactus* complex was published in April 2010. No critical habitat for Uinta Basin hookless cactus has been designated (72 FR 75215). Core conservation areas also have been established by the FWS to provide management guidance for habitat for both Uinta Basin hookless cactus and Pariette cactus (heretofore referred to as Sclerocactus core habitat), as no clear geographic delineation between the ranges and habitat requirements of these species exists (FWS n.d.). The FWS and BLM are currently working to develop management recommendations to ensure that *Sclerocactus* species can be recovered, especially in light of potential energy development projects that could increase the level of development in *Sclerocactus* habitat and across the species range. Core areas are based on pollinator travel distance and are designed to provide habitat connectivity between populations and individuals.

Taxonomy and Life History

Uinta Basin hookless cactus has had an involved taxonomic history. It was first collected by Schumann in 1898 and initially described as *Echinocactus glaucus.* In 1917, considering the Schumann publication to be illegitimate, Rydberg redescribed the species as *Echinocactus subglaucus*. In 1925, Purpus treated the species as a variety of Whipple's fishhook cactus *Echinocactus whipplei* var. *glaucus*. By 1939, the species was first placed in the genus *Sclerocactus* as *Sclerocactus franklinii* by Evans. In 1966, Benson assigned six species to the *Sclerocactus* genus and noted that *Sclerocactus glaucus* was distinguished from others in the genus by a large unhooked central spine and noticeably smaller seeds (Benson 1966). In 1972, Arp changed the genus to *Pediocactus*, leading to an assignment of *Pediocactus glaucus* (Arp 1972). Finally, in 1981, the species was restored to Benson's concept of *Sclerocactus* (Heil et al. 1981) and re-established *Sclerocactus glaucus* in the taxonomic literature (FWS 1990a).

Sclerocactus glaucus remained the accepted name until revisions to the taxonomy of the Uinta Basin hookless cactus in 1989 resulted in three distinct species, once part of the *Sclerocactus* complex. This reclassification was based on genetic studies, common garden experiments (Welsh et al. 2003), distribution, and a reevaluation of the morphological characteristics. The recently published Flora of North America now recognizes *Sclerocactus glaucus*, *Sclerocactus wetlandicus*, and *Sclerocactus brevispinus*, which collectively were recognized as *Sclerocactus glaucus* at the time of listing (72 FR 53211). The FWS officially recognized the taxonomic revision in September 2009 (74 FR 47112–47117).

Uinta Basin and Colorado hookless cacti (*Sclerocactus wetlandicus* and *Sclerocactus glaucus)* are morphologically similar. They are low growing, leafless succulent plants that are oval to globular in shape. The stems are generally solitary, but sometime grow in clusters of two or three. Individuals can reach heights of 1.5 to 7 inches and 1 to 4.5 inches in diameter. Stems are covered with protuberances arising from the twelve ribs. The cacti have numerous 1- to 2-inch pinkish flowers that have pronounced

ultra-violet reflectance, unique to the genus (FWS 1990a). Flowers bloom in late April to May and produce green, thin-walled fruits that turn red at maturity. The seeds are small, black, and asymmetrical. It appears that small bees (families *Halictidae* and *Anthophoridae*), ants, and gravity are the primary dispersal mechanisms that may be a limiting factor to the distribution (NatureServe 2008b).

Although no long-term demographic data is available, it is believed that the species may live for 10 to 20 years in good conditions. Populations range from 1 to more than 1,000 individuals with a wide range of ages. Known predators include the cactus borer beetle and rodents (FWS 1990a).

Distribution and Habitat Requirements

The known distribution of the *Sclerocactus* complex includes federal, state, tribal, and private lands in Utah (Uintah, Duchesne, and Carbon counties) and Colorado (Mesa, Delta, Garfield, and Montrose counties). At the time of listing, eight populations of the *Sclerocactus* complex were known to occur in five counties in western Colorado and eastern Utah. Since that time, two small outlier populations near Gateway, Colorado and Bonanza, Utah have been identified. Ninety percent of the total population of the three species occurs on BLM-administered lands (FWS 1990a). Because the specific distribution and habitat requirements vary for the three species, they are described separately.

Uinta Basin hookless cactus (*Sclerocactus wetlandicus*) is endemic to northeast Utah (Duchesne and Uintah counties) where it occurs entirely in the BLM Diamond Mountain planning area. Current population estimates are at about 30,000 individuals over a range that is approximately 60 miles long and 25 miles wide. Individuals are patchily to densely distributed near the confluence of the Green, White, and Duchesne rivers near Ouray National Wildlife Refuge and the town of Ouray, Utah south along the Green River to the vicinity of Sand Wash including concentrations near the mouth of the Pariette Draw (FWS 1990a).

Sclerocactus wetlandicus and *Sclerocactus glaucus* occur in salt desert shrub communities and pinyon-juniper woodlands on river benches, valley slopes, and rolling hills. Both species occur on Quaternary and Tertiary alluvial soils that are fine textured, dry, and overlain with cobble and pebble (BLM 2008d). The soil is weathered from the Uinta and Green River formations. Most of the range is in existing oil and gas fields or in undeveloped oil and gas lease areas. The cactus is more abundant on south facing slopes with up to a 30 percent grade at an elevation of 4500 to 5900 feet. Associated vegetation includes shadscale, galleta, black sage, and Indian rice grass (FWS 1990a).

Primary Threats to Survival

The primary threats to the survival of Uinta Basin hookless cactus stem from mineral and energy development, water development, and collection. Most of the range of the species is in existing oil and gas fields or undeveloped oil and gas lease areas (BLM 2008d). This activity has the potential to devastate local populations. The cactus is also sought out by professional and amateur cactus growers for its beautiful flowers. Because of its natural scarcity, it is a prized species for collectors and therefore could be highly threatened by the unregulated commercial trade of those plants collected from the wild (FWS 1990a).

Occurrence in the Project Area

The Uinta Basin hookless cactus is known to occur in the central portions of the Project area in Utah (Uintah, Duchesne, and Carbon counties) and Colorado (Mesa and Garfield counties). Most of the populations are on BLM-administered lands, but also occur on the Ouray National Wildlife Refuge, the Uintah and Ouray Reservation, and private lands. In the Utah portion of the range, Uinta Basin hookless cactus occurs on alluvial river terraces near the confluence of the Green, White, and Duchesne rivers

south along the Green River to the vicinity of Sand Wash and the mouth of the Pariette Draw, the Badland Cliffs, and the clay badlands of the Pariette Draw drainage south of Myton, Utah (FWS 1990a). Populations are known to occur along Links U400 and U402 along Pariette Draw, Nine Mile Canyon, and the Green River.

Ute Ladies'-tresses (*Spiranthes diluvialis*) – FWS: Threatened

Regulatory Status

On September 27, 1985, the FWS published a notice that included Ute ladies'-tresses as a Category 2 species candidate for listing (50 FR 39526). Category 2 comprised taxa for which the FWS had information indicating the appropriateness of a proposal to list as endangered or threatened but for which more substantial data was needed on biological vulnerability and threats. After a review of status information acquired after the 1985 notice, the FWS upgraded Ute ladies'-tresses to a Category 1 species in the February 21, 1990, Notice of Review (55 FR 6184), which meant the FWS had in possession enough data to support listing. The final decision to list the species as threatened was published on January 17, 1992 (57 FR 2048). Critical habitat was not designated for the species. On May 10, 1996, the FWS received a petition from the Central Utah Water Conservancy District to delist Ute ladies'-tresses. Due to the low priority assigned to delisting petitions, the FWS postponed immediate action. On October 12, 2004, the FWS initiated a 5-year review that would be used to determine the outcome of the petition to delist (69 FR 60605). The recovery plan for Ute ladies'-tresses was published in 1995 (FWS 1995b).

The recovery plan for Ute ladies'-tresses was published in 1995 (FWS 1995b). The objective of the plan is the continued existence of Ute ladies'-tresses, but no specific delisting criteria are given. The species will be considered for delisting when sites that include occupied habitat harboring 90 percent of the plants in each ecoregion are protected at public ownership or higher levels of protection and managed in accordance with a FWS-approved management plan. The plan must assure implementation of management practices that provide the range and spatial distribution of successional and hydrologic regimes required to maintain the species and its pollinators in self-sustaining, naturally occurring populations that will remain in effect after delisting occurs.

Taxonomy and Life History

The Ute ladies'-tresses, also known as flood ladies'-tresses, is a member of the family *Orchidaceae* (UDWR 2005b). Prior to 1984, only three species of white-flowered Ladies'-tresses were known to exist – *Spiranthes cernua, Spiranthes romanzoffiana,* and *Spiranthes porrifolia.* In 1980, a specimen was collected near Golden, Colorado that was first thought to be *Spiranthes cernua* and sent to Dr. Charles Sheviak who was conducting studies on the genus *Spiranthes*. In 1984, after visiting sites in both Colorado and Utah, Sheviak described the new species *Spiranthes diluvialis*. In the description, *Spiranthes diluvialis* is believed to have resulted from the hybridization of *Spiranthes magnicamporum* and *Spiranthes romanzoffiana* during a Pleistocene pluvial period, at a time when the two species would have occurred sympatricly (FWS 1995b).

Ute ladies'-tresses is a long-lived perennial orchid with a flowering stalk arising from clusters of basal leaves and short thickened roots. It reproduces only by seeds and can produce as many as 7300 seeds per fruit that can persist for up to 8 years as subterranean saprophytes dependent on mycorrhizal fungi. Leaf rosettes may emerge at the end of the growing season and overwinter. In any given year, mature plants can be found in stages – flowering, non-flowering (vegetative), and seasonally dormant stages. Under adverse conditions, individual plants may not flower and can persist underground for an unknown period of time until conditions are amenable to survival above ground. This can make locating the plant difficult and the species can only reliably be identified when flowering (FWS 1995b).

Distribution and Habitat Requirements

Ute ladies'-tresses is known to occur in three general areas: near the base of the eastern slope of the Rocky Mountains, the Uinta Basin, and near the western base of the Wasatch Mountains. Near the Rocky Mountains, the species is found in north-central and central Colorado (Clear Creek, Jefferson, Boulder, Larimer, and possibly Moffat counties), east-central Idaho (Bonneville and Jefferson counties), southwestern Montana (Beaverhead, Broadwater, Gallatin, Jefferson, and Madison counties) and east-central and southeastern corner of Wyoming (Converse, Goshen, Laramie, and Niobrara counties), and downstream in western Nebraska (Sioux, Washington, and Okanogan counties). In the Uinta Basin, the species is generally associated with the upper Colorado River drainage. Near the Wasatch Mountains, the species is generally found in the eastern Great Basin of western Utah in Daggett, Garfield, Wayne, Utah, Salt Lake, Weber, and Tooele counties (FWS 1995b).

The Ute ladies'-tresses is endemic to moist or very wet meadows near springs, lakes, or perennial streams. It is also found in abandoned stream meanders that retain ample groundwater. It is found at elevations ranging from 4,300 to 7,000 feet. The species is generally found in areas with relatively open vegetation, although some individuals have been observed in the riparian woodlands of eastern Utah and Colorado. Populations are generally small and located in scattered groups occupying small areas in the riparian system (FWS 1995b).

Primary Threats to Survival

Riparian habitat and the nomadic grazing typical of native ungulates are vital to Ute ladies'-tresses to create and maintain habitat, both of which have been altered since settlement of the west. Orchid habitat is now grazed by cows, sheep, or horses, all of whose grazing habits differ from native ungulates in timing and intensity. Season-long grazing where the plants are destroyed after flower stem formation can be detrimental to the already low reproductive success of the species. Water developments, urbanization, and dams interrupt flooding cycles causing fragmentation and destruction of vital habitat (57 FR 2048). Reservoirs, dams, and diversions have drastically altered some stream systems by completely dewatering some reaches and changing their magnitude and timing of flow. In addition, invasion by noxious weeds such as the leafy spurge (*Euphorbia esula*), spotted knapweed (*Centaurea maculosa*), and Russian knapweed (*Centaurea repens)* can outcompete the species in already limited habitat (FWS 1995b). Degradation of habitat for pollinator species in the surrounding area also has been proposed as a threat to the species (Sipes and Tepedino 1995).

Occurrence in the Project Area

Ute ladies'-tresses is known to occur along Links U420 and U430. One location is near the junction of Benson Draw and the Duchesne River along Link U420. Another location is along the Lake Fork Canal west of Upalca along Link U420. Another location is along Currant Creek west of Fruitland along Link U420. Two occurrences are along the Lake Fork River west of Ioka along Link U430. A known population is crossed by the centerline of Link U430 at Lake Fork River.

At the request of the BLM and FWS, EPG identified potentially suitable habitat for Ute ladies'-tresses in 6th level hydrologic unit code (subwatersheds) crossed by Project alternative routes using GIS desktop analysis. Modeled potentially suitable habitat was visually refined for an area within a 1-mile buffer around all reference centerlines as defined in April 2012, October 2012, and again in April 2013 based on revised centerlines in Wyoming, Colorado and Utah.

Western Prairie Fringed Orchid (*Platanthera praeclara*) – FWS: Threatened

Regulatory Status

On October 11, 1988, the FWS published a proposal to list western prairie fringed orchid as threatened (53 FR 39621-39626). This rule was finalized on September 28, 1989 (54 FR 39857-39863). Critical habitat has not been designated for the species.

The recovery plan for western prairie fringed orchid was published in 1996 (FWS 1996). The objective of the plan is to delist the species. The species will be considered for delisting when sites that include occupied habitat harboring 90 percent of the plants in each ecoregion are protected at public ownership or higher levels of protection and managed in accordance with a FWS-approved management plan. The plan must assure implementation of management practices that provide the range and spatial distribution of successional and hydrologic regimes required to maintain the species and its pollinators in self-sustaining, naturally occurring populations that will remain in effect after delisting occurs.

Taxonomy and Life History

The western prairie fringed orchid, also known as Great Plains white fringed orchid, is a member of the family *Orchidaceae*. The species was previously included as a single species with the eastern prairie fringed orchid (*Platanthera leucophaea*) but was described separately in 1986 by Dr. Bowles on the Sheyenne National Grassland in Ransom County, North Dakota (FWS 1996).

The western prairie fringed orchid is a smooth, erect perennial herb with two to five fairly thick elongated hairless leaves. Flowers are wide and white in color with the lower petal deeply three-lobed and fringed. Plants typically grow to approximately 4 feet in height (FWS 1996). Like many orchids, western prairie fringed orchid may experience periods of dormancy. Research estimates 4 to 12 percent of plants may be dormant each year and dormancy may be as short as 1 year but could last as long as 8 years (FWS 2009a). This can inhibit the ability of surveyors to detect the species presence.

Distribution and Habitat Requirements

The western prairie fringed orchid is historically known to occur throughout the Great Plains of North America. In 1996, populations of the species were known to occur in 41 counties across six states (Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota) and Manitoba, Canada (FWS 1996). Populations in Nebraska are in the Platte River watershed.

The species inhabits tallgrass prairies and is found most often on unplowed, calcareous prairies and sedge meadows. It also has been known to occur at disturbed sites in successional communities such as borrow pits, old fields, and roadside ditches. Most locations are similar in that they are subirrigated by near-surface groundwater that provides a reliable source of water. Species likely to occur with the orchid are big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), and Indiangrass (*Sorghastrum nutans*) in tallgrass prairies and sedge and spikerush (*Eleocharis* spp.) species in sedge meadows (FWS 1996).

Primary Threats to Survival

Historically, the major cause for decline of the species was conversion of habitat to cropland. Hydrologic changes that draw down or contaminate the water table also may adversely affect the species. Additional practices also may affect the species depending on their timing, frequency, and intensity. These include burning, grazing, and mowing (FWS 1996). However, the species is dependent on periodic disturbance, but these management practices must be carefully implemented (FWS 2009a).

In addition to these threats, nonnative species may out-compete western prairie fringed orchid. Inter-seeding of nonnative species to increase livestock forage is promoted in some states inhabited by western prairie fringed orchid, such as Nebraska (FWS 2009a).

Occurrence in the Project Area

The western prairie fringed orchid is not known to occur in the Project area. However, populations in Nebraska occur in the Platte River watershed. Therefore, the populations could be affected should the Project draw water from the Platte River. PacifiCorp, doing business as Rocky Mountain Power (Applicant), has not identified the specific sources and volumes of water that would be used for each alternative route at this time. All Project alternative routes would require water use in the Platte River Basin and would be subject to consultation under Section 7 of the ESA. Compliance with regulations regarding water use in the Platte River Basin will be addressed through the Section 7 consultation process.

J.6.1.2 Bureau of Land Management, U.S. Forest Service, and State-Sensitive Plant Species

Argyle Canyon Phacelia (*Phacelia argylensis*) – BLM: Utah

Argyle Canyon phacelia is found only in Argyle Canyon on the West Tavaputs Plateau in Uintah County, Utah (Welsh et al. 2008). It grows on sandy-silty soil in wash bottoms on the Green River Shale Formation in pinyon-juniper serviceberry, and Douglas fir communities at 7,595 feet (Welsh et al. 2008). Occurrences of the species are within 5 miles of alternative routes in the BLM Vernal Field Office.

Barneby's Cat's-eye (*Cryptantha barnabyi*) – BLM: Utah

Barneby's cat's-eye is a perennial forb that is locally abundant on the domed or gently sloping white shale knolls of the Green River Formation in the Uinta Basin, mostly in shadscale and pinyon-juniper communities from 6,070 to 7,870 feet (NatureServe 2013). Occurrences of the species are within 1 mile of alternative routes in the BLM Vernal Field Office.

Beaver Rim Phlox (*Phlox pungens*) – BLM: Wyoming

Beaver Rim phlox is a perennial forb endemic to the Wind River and Green River basins and the southeastern foothills of the Wind River Range. The species grows on sparsely vegetated clay and shale slopes in the Green River Basin at elevations from 6,000 to 7,400 feet (NatureServe 2013). WYNDD-modeled habitat for the species occurs in the Project area in Wyoming (WYNDD 2011).

Bolander's Camissonia (*Camissonia bolanderi*) – BLM: Utah

Bolander's camissonia was first located and described as a species in 2005. It is known only from a single location in the upper Tidwell Draw approximately 15 miles northwest of the town of Green River. This location is on the Triassic Moenkopi Formation in association with saltbush and ephedra at 4,780 feet (Atwood and Welsh 2007). This sole occurrence is along Link U730.

Caespitose Cat's-eye (*Cryptantha caespitosa*) – BLM: Colorado

Caespitose cat's-eye occurs on sparsely vegetated shale knolls at 6,200 to 8,100 feet. Habitat includes pinyon-juniper or sagebrush and is typically found with other cushion plants (CNHP 2002). Current known locations are in Daggett, Uintah, Duchesne, and Carbon counties of Utah and Moffat County, Colorado (UDWR 1998). There is one known occurrence of the species within 0.5 mile of Link U401, near the Bad Land Cliffs in Duchesne County. Two occurrences are between 1.0 and 1.5 miles of Link

U20 in Daggett County. Three known occurrences, are along Links C61 and C220 in Rio Blanco and Moffat counties.

Canyon Sweet-vetch (*Hedysarum occidentale* var. *canone*) – USFS: Manti-La Sal National Forest

Canyon sweet-vetch is endemic to Carbon, Duchesne, and Emery counties, Utah, and occurs on or below the coal measures of the Mesa Verde group (Welsh et al. 2008). It is found in pinyon-juniper, serviceberry (*Amelanchier* spp.), maple (*Acer* spp.), alderleaf mountain mahogany, and sagebrush communities between 6,400 and 8,300 feet (UNPS 2012). The species is known to occur along several links in Carbon and Emery counties in Utah.

Carrington Daisy (*Erigeron carringtoniae*) – USFS: Manti-La Sal National Forest

Carrington daisy is endemic to Emery, Sanpete, and Sevier counties, Utah. It is found on Flagstaff Limestone in meadows and escarpment margins between 10,000 and 11,000 feet (UNPS 2012). There are two occurrences of the species in the Project area along Link U630. Both occurrences are within 2.5 miles of Trail Mountain in the Manti-La Sal National Forest.

Cedar Rim Thistle (*Cirsium aridum*) – BLM: Wyoming

Cedar Rim thistle occurs on barren slopes, fans, and draws on whitish-gray sandstone, chalk, tufaceous colluviums, or clay substrates in bunchgrass or cushion plant communities in openings in Wyoming big sagebrush grasslands. The species is endemic to central Wyoming (Fertig and Thurston 2003). There are no known occurrences in the vicinity of the Project area; however, there is predicted suitable habitat that occurs in the Project area. Specifically, there is suitable habitat within the 1-mile buffer along Link W21 and W491. There is high and medium likelihood suitable habitat along the centerlines of Links W126, W127, and W128 southwest of Wamsutter.

Creutzfeldt's Cat's-eye (*Cryptantha creutzfeldtii*) – BLM: Utah; USFS: Manti-La Sal National Forest

Creutzfeldt's cat's-eye occurs in scattered pinyon-juniper communities with an understory of black sagebrush and mat *Atriplex* communities on a silty-clay substrate of the Mancos Shale Formation overlain with Emery Sandstone at elevations from 5,250 to 6,500 feet. It is endemic to central Utah (Carbon, Emery, and Sevier counties) (UNPS 2012). It is currently known from scattered locations along the base of the Book Cliffs and Wasatch Plateau escarpments as they flank Castle Valley on the north and west edges (Franklin 2005) including the Manti-La Sal National Forest, BLM, and privately owned lands (UNPS 2012). A study in 1997 reported six occurrences at Rowley Flat near the junction of Links U590, U630, and U765 west of Huntington, Utah. All six occurrences are within 0.6 mile of the centerlines with three occurrences being crossed by the centerlines.

Debris Milkvetch (*Astragalus detritalis*) – BLM: Colorado

Debris milkvetch occurs on rocky soils ranging from sandy clays to sandy loams on alluvial terraces with cobbles at 5,400 to 7,200 feet. Habitat includes pinyon-juniper and mixed desert shrub communities (CNHP 1999). The species is endemic to the Uinta Basin where it is locally common across the Tavaputs Plateau; also known to occur near Starvation Reservoir to the White River drainage and Vermillion Bluffs in Colorado. Known occurrences are along centerlines of numerous links in Duchesne and Uintah counties, Utah, and Rio Blanco County, Colorado.

Dense Twinpod (*Physaria condensata*) – BLM: Wyoming

Dense twinpod is a perennial forb endemic to the southern Overthrust Belt and lower Green River Basin in southwest Wyoming. It grows on sparsely vegetated shaley slopes and ridges from 6,500 to 7,000 feet (NatureServe 2013). WYNDD-modeled habitat for the species occurs in the Project area in Wyoming (WYNDD 2011).

Dolores River Skeletonplant (*Lygodesmia grandiflora* var. *doloresensis*) – BLM: Colorado, Utah

Dolores River skeletonplant grows between canyon walls on reddish purple alluvial and colluvial soils of the Cutler Formation at 4,000 to 5,500 feet (CNHP 2002). It occurs in juniper, sagebrush, rabbitbrush, and blackbrush communities (UNPS 2012). It has the most restricted distribution of any plant in the genus and is found only in Grand County, Utah, and Mesa County, Colorado. No known occurrences are in the Project area. The closest known occurrence is in northwestern Mesa County, Colorado, between Prairie Canyon and the Colorado-Utah border. This occurrence is approximately 2 miles west of Link C196.

Duchesne Milkvetch (*Astragalus duchesnensis*) – BLM: Colorado

Duchesne milkvetch occurs on sandstone or shale outcrops at 4,600 to 6,400 feet in pinyon-juniper woodland and desert shrub communities. Current known distribution includes Utah (Uintah and Duchesne counties) and Colorado (Moffat and Rio Blanco counties) (CNHP 2002). Known occurrences are in the Project area along links in Duchesne, Uintah, and Daggett counties in Utah and a single occurrence along Link C195 in Rio Blanco County, Colorado, near Rabbit Mountain.

Ephedra Buckwheat (*Eriogonum ephredoides*) – BLM: Colorado

Ephedra buckwheat grows on white shales and soils derived from the Green River Formation. The habitat is sparsely vegetated white shale slopes at 5,600 to 6,030 feet (CNHP 2002). The current known distribution is limited to Colorado (Rio Blanco County) and Utah (Uintah County). There are four known occurrences within 4 miles of the alternative routes in Utah (Links U240 and U400). Only one of these occurrences is less than 30 years old, and was from southeastern Duchesne County, Utah, near Twin Knolls approximately 3 miles south of Link U400. There is one occurrence within the 1-mile buffer in Colorado near Shavetail Park along Link C220.

Ferron's Milkvetch (*Astragalus musiniensis*) – BLM: Colorado

Ferron's milkvetch occurs on shale and sandstone or the alluvium derived from them at 4,700 to 7,000 feet. Habitat includes gullied bluffs, knolls, benches, and open hillsides in pinyon-juniper woodlands or desert shrub communities. Current known distribution includes Utah and Colorado (Garfield and Mesa counties) (CNHP 2002). Know occurrences of Ferron's milkvetch are along alternative routes in Carbon, Emery, and Grand counties in Utah and at a single occurrence in Rio Blanco County, Colorado. Numerous additional occurrences are within 5 miles of alternative routes in those counties named above as well as Mesa County, Colorado.

Gibbens' Beardtongue (*Penstemon gibbensii*) – BLM: Wyoming, Colorado, Utah

Gibbens' beardtongue is known to occur in Utah, Wyoming, and Colorado, relatively close to the junction of these three states. The species inhabits shaley slopes and bluffs along the Green River at elevations of 5,500 to 7,700 feet. Studies in Wyoming of soils have revealed that a common component of all sites in Wyoming have volcanic ash associated with the shale/chalk substrate. In the Project area, there are three highly studied populations encompassing several hundred plants each in Sweetwater and Carbon counties, Wyoming. Two populations are along Link W301 and the remaining population is along

Link W410. In Daggett County, Utah, another large population estimated in 1989 at more than 700 plants, but only a single individual was detected in 2010 (UNHP 2012). This population is along the Green River approximately 3 miles east of Link U20. Predicted suitable habitat is within the 1-mile buffer of Links W110, W111, W113, W300, W301, W302, W321, W370, W410, and W411. All links except Links W111 and W370 have habitat along the centerlines.

Goodrich's Blazingstar (*Mentzelia goodrichii*) – BLM: Utah; USFS: Ashley National Forest

Goodrich's blazingstar grows on steep, white, marly, calciferous shale outcrops of the Green River Formation at 8,100 to 8,800 feet. Associated vegetation includes limber pine, pinyon pine, Douglas fir, mountain mahogany, and rabbitbrush. It is endemic to southern Duchesne County where it is known to occur along the Bad Land Cliffs above Argyle Canyon and west into Avintaquin Canyon (Franklin 2005) and along the escarpment of Willow Canyon and the Anthro Mountain area of the West Tavaputs Plateau (UDWR 1998). There are three known occurrences along the centerlines of Links U401 and U431.

Goodrich's Columbine (*Aquilegia scopulorum* var. *goodrichii*) – BLM: Utah

Goodrich's columbine is endemic to Duchesne County, Utah, and occurs in bristlecone pine, limber pine, Salina wildrye, mountain mahogany, pinyon, and Douglas fir communities in Green River Shale bluffs and ridge crests from 7,400 to 9,400 feet (Welsh et al. 2008). Occurrences of the species are within 1 mile of alternative routes in the BLM Vernal Field Office.

Graham's Cat's-eye (*Cryptantha grahamii*) – BLM: Utah

Graham's catseye is a long-lived perennial that grows in mixed desert shrub, sagebrush, pinyon-juniper, and mountain brush communities on Green River Shale at 5,000 to 7,400 feet elevation within the Uinta Basin in Duchesne and Uintah counties (UNPS 2012) and San Juan County (NatureServe 2013) in Utah. Occurrences of the species are within 5 miles of alternative routes in the BLM Vernal Field Office.

Graham's Beardtongue (*Penstemon grahamii*) – BLM: Colorado and Utah

Regulatory Status

Graham's beardtongue was initially proposed to be listed as endangered on June 16, 1976 (41 FR 24523). However, on December 10, 1979, the species was withdrawn as a candidate because the species had not been listed within 2 years (as required by a 1978 amendments to the ESA). The species was designated as a category 2 candidate for listing on December 15, 1980 (45 FR 82480). On November 28, 1983, Graham's beardtongue was elevated to a category 1 candidate for listing (48 FR 53640-53670). On January 9, 2006, Graham's beardtongue was proposed to be listed as threatened with critical habitat designated in Uintah County, Utah, and Rio Blanco County, Colorado (71 FR 3158-3196). However, on December 19, 2006, the FWS withdrew the proposed rule to list the species as threatened as threats to the species were determined to be unlikely to threaten or endanger the species in the foreseeable future throughout all or a significant portion of its range. Withdrawal of this proposed rule to list the species also removed the species from candidate status (71 FR 76024-76035). Graham's beardtongue was proposed again for listing as a threatened species on August 6, 2013 (78 FR 47590-47611) and proposed critical habitat was established (78 FR 47532-47858). On August 6, 2014, FWS withdrew the proposed rule to list Graham's beardtongue based on the conclusion that the threats to the species were no longer as significant as previously determined (79 FR 46042-46087). The FWS listing withdrawal was in response to a cooperative group of federal, state, county, and private stakeholders signing a Conservation Agreement and Strategy for Graham's Beardtongue and White River Beardtongue (Penstemon Conservation Team 2014). Pursuant to commitments in the Conservation Agreement, in July 2015, a

mitigation plan was released providing detailed avoidance, minimization, and mitigation measures for Graham's beardtongue and habitat (Penstemon Conservation Team 2015).

Taxonomy and Life History

Graham's beardtongue is a member of the figwort family (*Scrophulariaceae*). The species is a perennial herb that is typically 2.8 to 7.0 inches in height. Each individual has one to three stems coming from a taproot (78 FR 47591).

The species flowers from late May through mid-June (UNPS 2012). Flowers emerge as a cluster of 3 to 20 flowers, vary from light to dark lavender or pinkish, and produce 5 to 50 seeds from each of four stamens (78 FR 47591).

Distribution and Habitat Requirements

Graham's beardtongue is limited to the Uinta Basin in known occurrences in Carbon, Duchesne, and Uintah counties in Utah and Rio Blanco County, Colorado (UNPS 2012). The species inhabits exposed raw shale knolls and slopes. The majority of populations are associated with exposed oil shale Mahogany ledge (71 FR 3160).

Primary Threats to Survival

The 2013 proposed rule to list Graham's beardtongue and White River beardtongue as threatened identified present and potential energy exploration and development as the predominant threat to the continued existence of these species (78 FR 47590). Additional threats are invasive weeds and climate change. Livestock grazing, unauthorized collection, road maintenance and construction, wildfire, and small population size were determined not to be threats to these species at present (78 FR 47602-47605).

Occurrence in the Project Area

There are total of 62 occurrences of Graham's beardtongue within 5 miles of Links C22, C188, C196, U240, U242, and U400. Only two occurrences fall within the 1-mile buffer. One occurrence is approximately 9 miles west of Rangely on the north side of the White River, near Link C220. The other occurrence is close to the centerline of Links C188 and U242 on Raven Ridge near the Utah-Colorado Stateline. Conservation areas for Graham's beardtongue occurs approximately 1 mile from Link U242 and within 1 mile of Link U400 in Utah.

Grand Junction Suncup (*Camissonia eastwoodiae*) – BLM: Colorado

Grand Junction suncup inhabits mat-saltbush, shadscale, blackbrush, and juniper communities at elevations of 3,900 to 5,900 feet. The species is only known from Delta and Mesa counties, Colorado and Grand County in Utah (NatureServe 2011). There are three known occurrences within 2.5 miles of the centerline of Link C270 west of Mack, Colorado. One of these occurrences is along the centerline at the Colorado-Utah border.

Green River Greenthread (*Thelesperma caespitosum*) – BLM: Wyoming, Utah; USFS: Ashley National Forest

Green River greenthread occurs on white shale slopes and ridges of the Green River Formation at approximately 5,900 feet. It is endemic to Duchesne and Uintah counties in Utah and Sweetwater County, Wyoming, where the current known distribution includes Ashley National Forest, BLM, state, and private lands (UNPS 2012). Two known occurrences of Green River Greenthread are within 0.5 mile of Link U401 near Antelope Canyon in Duchesne County. Two occurrences from BLM Vernal Field Office are

along the centerline in this same area. Three additional occurrences are within 3 miles of alternative routes in the same Bad Land Cliffs area of Duchesne County.

Hairy Townsend-daisy (*Townsendia strigosa* var. *prolixa*) – BLM: Utah

Hairy Townsend-daisy is an unrecognized variety of *T. strigosa* that was first collected at Chepeta Wells in the Uinta Basin (Welsh et al. 2008). The species inhabits salt desert shrub, mixed desert shrub, and pinyon-juniper communities between 4,790 and 6,220 feet (Welsh et al. 2008). Occurrences of the species are within 5 miles of reference centerlines in the Uinta Basin in the BLM Vernal Field Office.

Hamilton's Milkvetch (*Astragalus hamiltonii*) – BLM: Utah

Hamilton's milkvetch is endemic to the Uinta Basin in Uintah County, Utah. The species inhabits pinyon-juniper and desert shrub communities in the Duchesne River, Wasatch, Mowry Shale, Dakota, and other formations between 5,250 and 6,200 feet (UNPS 2012). BLM-mapped potential habitat for the species is crossed by Links U410, U391, and U390.

Horseshoe Milkvetch (*Astragalus equisolensis*) – BLM: Colorado, Utah

Horseshoe milkvetch is only known from Uintah County, Utah, and Mesa County, Colorado. The species inhabits sagebrush, shadscale, horsebrush, and other mixed desert shrub communities on the Duchesne River Formation at elevations of 4,800 to 5,200 feet (UNPS 2012). There is a large population that is crossed by the centerline of Link U321 and is within the 1-mile buffer of Link U380. The population is in the area of Horseshoe Bend along the Green River southwest of Jensen. It extends into the area within a triangle formed by Links U321, U322, U380, and U390. BLM-mapped potential habitat for the species is crossed by Links U390 and U310.

Huber's Pepperwort (*Lepidium huberi*) – BLM: Utah

Huber's pepperwort is a subshrub endemic to eastern Utah and western Colorado in the Uinta Mountains and on the East Tavaputs Plateau (NatureServe 2013). It grows in blackbrush, mountain brush, ponderosa pine, and spruce-fir communities in sand or silty sands derived from the Shiarump Member of the Chinle, Moenkopi, Park City, and Weber Sandstone formations (NatureServe 2013; UNPS 2012; Welsh et al. 2008). Occurrences of the species are within 5 miles of alternative routes in the Uinta Basin in the BLM Vernal Field Office.

Jones' Bluestar (*Amsonia jonesii*) – BLM: Colorado

Jones' bluestar occurs on clayey, sandy, and gravelly soils of dry open areas. The habitat is typically desert-steppe, rock gorges, or canyons at 4,500 to 5,000 feet (CNHP 2002; Spackman and Anderson 2002). A single occurrence in Colorado is within 1 mile of the centerline of Link C270 northwest of Mack, Colorado. The closest known occurrence in Utah is within 1.5 miles of Link U90 north of Jensen. There are no known occurrences on Jones' bluestar within 3 miles of any alternative routes more recent than 1965.

Laramie False Sagebrush (*Sphaeromeria simplex*) – BLM: Wyoming

Laramie false sagebrush occurs on gentle slopes or rims of dry, rocky limestone-sandstone plains in openings dominated by cushion plant communities in areas of more densely vegetated juniper, limber pine, big sagebrush, or mountain mahogany at elevations of 7,200 to 8,760 feet. The species is endemic to southeast Wyoming in the western foothills of the Laramie Range, Shirley Basin, and Shirley Mountains (Fertig and Thurston 2003). There are no known occurrences of the species in the Project area; however, there is modeled suitable habitat in the Project area. There is one area of medium likelihood suitable

habitat within the 1-mile buffer of Link W370 northeast of Baggs, Wyoming. Other areas of suitable habitat are within 5 miles of the centerlines of Links W15, W21, and W30.

Large-fruited Bladderpod (*Lesquerella macrocarpa*) – BLM: Wyoming

Large-fruited bladderpod is a perennial forb endemic to a small area in the western rim of the Great Divide Basin and the Green River Basin. The species grows on barren or sparsely vegetated gypsum-clay hills and benches and clay flats from 7,200 to 7,700 feet (NatureServe 2013). WYNDD-modeled habitat for the species occurs in the Project area in Wyoming (WYNDD 2011).

Ligulate Feverfew (*Parthenium ligulatum*) – BLM: Colorado

Ligulate feverfew occurs on barren shale knolls at 5,400 to 6,500 feet in Utah and Colorado (Rio Blanco and Moffat counties) (CNHP 2002). In the vicinity of the Project area, the ligulate feverfew is known to occur in Rio Blanco County, Colorado. Only one known occurrence is in the Project area. It is along the centerline of Link C220 where this link crosses the White River. Two other occurrences are on the western edge of Raven Ridge approximately 2.5 miles southeast of Link U242.

Meadow Pussytoes (*Antennaria arcuata*) – BLM: Wyoming

Meadow pussytoes is a perennial forb endemic to the Great Basin in south-central Idaho, northeastern Nevada, and central and southwestern Wyoming. The species occurs on the edges and hummocks of moist meadows surrounded by sagebrush grassland communities from 4,900 to 7,900 feet (NatureServe 2013). WYNDD-modeled habitat for the species occurs in the Project area in Wyoming (WYNDD 2011). The species is also a USFS sensitive species, though it does not occur on national forests in the Project area.

Narrowleaf Evening Primrose (*Oenothera acutissima*) – BLM: Colorado

Narrowleaf evening primrose grows in sandy, gravelly, and rocky soils along drainage bottoms and in seasonally wet areas (CNHP 2002) associated with lodgepole pine, ponderosa pine, and Rocky Mountain juniper-mountain sagebrush communities (UDWR 1998). It is endemic to Utah (Uintah, Duchesne, and Daggett counties) and Colorado (Moffat County). In Utah, the species is present along Link U30. Data from BLM Vernal Field Office shows one known occurrence along the centerline of Link U30. The alternative routes are outside the known range of the species in Colorado.

Narrow-stem Gillia (*Gilia stenothrysa*) – BLM: Colorado

Narrow-stem gilia occurs on silty to gravelly loam soils derived from the Green River or Uinta Formations in grassland, sagebrush, mountain mahogany, or pinyon-juniper communities between 5,000 and 6,000 feet (CNHP 2002). Current known distribution is Mesa and Rio Blanco counties in Colorado (CNHP 2002) and in Uintah, Duchesne, Carbon, and Emery counties in Utah (NRCS 2013c). Occupied habitat and occurrences of the species are within a mile of Links C186 and C196 in the BLM White River Field Office in Colorado.

Ownbey's Thistle (*Cirsium ownbeyi*) – BLM: Wyoming

Ownbey's thistle primarily occurs on rocky, gravelly, and sandy soils in alcoves and side canyons at cliff bases, bedrock seeps, or riparian areas at elevations from 5,100 to 7,280 feet (UDWR 1998). Habitat includes sagebrush, juniper, and riparian communities (UNPS 2012). Current known distribution is in Daggett and Uintah counties, Utah, and Moffat County, Colorado; however, the species is not listed as sensitive by the BLM Colorado or Utah. A single occurrence is known in the Project area near Massadona, Colorado, at the junction of Links C175, C177, and C186. Three occurrences are between 1.0

and 1.5 miles of the centerline of Link U20 near Swallow Canyon along the Green River in Daggett County.

Persistent-sepal Yellowcress (*Rorippa calycina*) – BLM: Wyoming

Persistent-sepal yellowcress occurs on sandy soils near the high water lane of riverbanks and shorelines at 4,300 to 6,800 feet. Current known distribution includes Carbon and Sweetwater counties in Wyoming (Fertig et al. 1994). A single known occurrence is in the Project area along Link W30 southwest of Sinclair, Wyoming. Predicted suitable habitat is within the 1-mile buffer of many links in Wyoming. The likelihood of suitable habitat is low along the centerlines of Links W22, W26, W101, W102, W108, W125, W126, W128, W129, W490, and W491 but high along Link W30.

Piceance Bladderpod (*Lesquerella parviflora*) – BLM: Colorado

Piceance bladderpod occurs on shale outcrops of Green River Formation on ledges and slopes of canyons in open areas at 6,200 to 8,600 feet. It is a Colorado endemic that occurs in the Piceance Basin in Garfield, Rio Blanco, and Mesa counties (CNHP 2002). Only one known occurrence is in the Project area. It is in Hay Gulch along Link C104 approximately 10 miles west of Meeker. No other known occurrences are within 10 miles of alternative routes.

Psoralea Globemallow (*Sphaeralcea psoraloides*) – BLM: Utah

Psoralea globemallow occurs on the Tununk Member of the Mancos Shale, Buckhorn Conglomerate, Curtis Sandstone, Entrada Siltstone, Carmel, and Kaibab Limestone from 4,000 to 6,300 feet. Typical habitat is saline, gypsiferous soils in Zuckia-Ephedra, shadscale, eriogonum, lepidum, and pinyon-juniper communities (UNPS 2012). It is endemic to the San Rafael Swell of the Colorado Plateau on BLM and state lands (UDWR 1998). A single occurrence is known to occur in the Project area, approximately 0.7 mile from Link U730 west of the town of Green River.

Racemose Milkvetch (*Astragalus racemosus* var. *treleasei*) – BLM: Wyoming

Racemose milkvetch is a perennial forb found throughout the central United States (NatureServe 2013). In Wyoming, the species is endemic to the Green River Basin and eastern foothills of the Wyoming Range in Sublette and Uinta counties (Heidel and Fertig 2003). The species occurs on sparsely vegetated, shale-derived outwash flats and fluted Badland slopes (Heidel and Fertig 2003). WYNDD-modeled habitat for the species occurs in the Project area (WYNDD 2011).

Rock Hymenoxis (*Hymenoxys lapidicola*) – BLM: Utah

Rock hymenoxys is endemic to Uintah County in northeastern Utah and occurs in rock crevices in ponderosa pine-manzanita and pinyon-juniper communities between 6,000 and 8,100 feet (UNPS 2012). Occurrences of the species are within 5 miles of alternative routes in the Uinta Basin in the BLM Vernal Field Office.

Rollins' Cat's-eye (*Cryptantha rollinsii*) – BLM: Colorado

Rollins' cat's-eye occurs on white shale slopes of the Green River Formation from 5,300 to 5,800 feet. Habitat includes pinyon-juniper or cold desert shrubland communities. Current known distribution includes Wyoming, Utah, and Colorado (Moffat and Rio Blanco counties) (CNHP 2002). There are numerous known occurrences in the Project area in Rio Blanco County, Colorado. Along Link C196 there are nine known occurrences near the Rio Blanco-Garfield County border. In Wyoming, there is a single occurrence in the Project area, approximately 0.8 mile from Link W492 approximately 6 miles north of the Utah border.

Spanish Bayonet (*Yucca sterilis*) – BLM: Utah

Spanish bayonet is endemic to the Uinta Basin in Duchesne and Uintah counties, Utah. The species inhabits sandy soils in salt desert shrub, juniper, sagebrush, and shadscale communities at elevations from 4,790 to 5,800 feet (UNPS 2012). Five known occurrences are within 5 miles of alternative routes in Uintah County, Utah. There is a single known occurrence in the Project area located along Link U321 at the mouth of Walker Hollow near the Green River southwest of Jensen. Additional occurrences are within 2 miles of Link U400 south and east of the White River.

Stemless Beardtongue (*Penstemon acaulis* var. *acaulis*) – BLM: Wyoming; USFS: Ashley National Forest

Stemless beardtongue is a long-lived perennial forb endemic to southwestern Wyoming and northeastern Utah. It inhabits semi-barren substrates in pinyon-juniper and sagebrush-grass communities from 5,900 to 8,200 feet (NatureServe 2013). WYNDD-modeled habitat for the species occurs in the Project area in Wyoming (WYNDD 2011). The species is also a USFS sensitive species in the Ashley National Forest; however, no known occurrences of the species are found within 20 miles of the Project area in Utah (UNHP 2012).

Thompson's Talinum (*Talinum thompsonii*) – BLM: Utah

Thompson's talinum occurs on shallow, gravelly soils weathered from the Buckhorn Conglomerate (UDWR 1998), mainly composed of siliceous pebbles at 7,500 feet. Habitat includes pinyon-juniper and ponderosa pine communities. It is endemic to the Colorado Plateau in Emery County where it is known to occur on BLM and state lands (UNPS 2012). There are no known occurrences in the Project area; however, all known occurrences of Thompson's talinum are on Cedar Mountain in Emery County within 5 miles of the alternative routes for Link U730.

Twisted Buckwheat (*Eriogonum contortum*) – BLM: Colorado

Twisted buckwheat occurs on the Mancos Shale Badlands at 4,500 to 5,100 feet in shadscale and other salt desert shrub communities. It occurs in Utah and Colorado (Garfield and Mesa counties) (CNHP 2002). Twisted buckwheat is known to occur within the 1-mile buffer of the Project area along links in Grand and Mesa counties.

Uinta Basin Spring-parsley (*Cymopterus duchesnensis*) – BLM: Colorado

Uinta Basin spring-parsley occurs on sandy clay and clay semi-barrens of Mancos and Morrison Shales derived from the Morrison, Uinta, Wasatch, and Green River Formations from 4,700 to 6,800 feet. The habitat is cold desert shrub, sagebrush, and juniper communities. The species is found in Utah (Uintah and Duchesne counties) and Colorado (Moffat and Rio Blanco counties) (CNHP 2002). The Uinta Basin spring-parsley occurs along alternative routes in Duchesne and Uintah counties, Utah. In Colorado, only one occurrence is within the 1-mile buffer of Link C196 along Salt Creek south of the Garfield-Mesa county line.

Untermann's Daisy (*Erigeron untermannii*) – BLM: Utah; USFS: Ashley National Forest

Untermann's daisy is endemic to the Tavaputs Plateau in Duchesne County, Utah (Welsh et al. 2008). It is found on calcareous shales and sandstones of the Uinta and Green River Formations in pinyon-juniper, mountain mahogany, limber pine, bristlecone pine (*Pinus longaeva*), and sagebrush communities between 7,000 and 9,400 feet (UNPS 2012). There are numerous known occurrences for the species along Link U432 in Ashley National Forest.

Wheeler's Angelica (*Angelica wheeleri*) – USFS: Uinta National Forest

Wheeler's angelica is endemic to Utah primarily along the Wasatch Front. It inhabits areas that are boggy or very wet typically in riparian communities, seeps, and springs from 5,380 to 10,000 feet (UNPS 2012) in Cache, Juab, Piute, Salt Lake, Sevier, and Utah counties (Welsh et al. 2008). Two occurrences are known from the junction of Salt Creek Canyon and McCune Canyon in Uinta National Forest approximately 5 miles from the alternative routes of Link U650.

White River Beardtongue (*Penstemon scariosus* var. *albifluvis*) – FWS: BLM: Colorado and Utah

Regulatory Status

White River beardtongue was first recognized as a candidate species on November 28, 1983 (48 FR 53640) but immediate issuance of a proposed rule and timely promulgation of a final rule for the species was precluded by higher priority listing actions. The species received a listing priority number of 9 due to ongoing and imminent threats of a moderate magnitude for the subspecies population in a species assessment published in October 2011 (76 FR 66370-66439). White River beardtongue was proposed for listing as a Threatened species on August 6, 2013 (78 FR 47590-47611) and proposed critical habitat was established (78 FR 47532-47858). On August 6, 2014, FWS withdrew the proposed rule to list White River beardtongue based on the conclusion that the threats to the species were no longer are as significant as previously determined (79 FR 46042-46087). The FWS listing withdrawal was in response to a cooperative group of federal, state, county, and private stakeholders signing a Conservation Agreement and Strategy for Graham's Beardtongue and White River Beardtongue (Penstemon Conservation Team 2014). Pursuant to commitments in the Conservation Agreement, in July 2015, a mitigation plan was released providing detailed avoidance, minimization, and mitigation measures for White River beardtongue and habitat (Penstemon Conservation Team 2015).

Taxonomy and Life History

White River beardtongue is a member of the figwort family (UDWR 2005b). It was first described as a unique species, *Penstemon albifluvis* in 1982 by J.L. England. However, in 1984 Arthur Cronquist and others redefined it as a variety of Garrett's penstemon (*Penstemon scariosus*), and changed the name to *Penstemon scariosus* var. *albifluvis. Penstemon scariosus* var. *albifluvis* differs from a typical *Penstemon scariosus* by exhibiting a shorter corolla and anther hairs and has a reduced basal leaf rosette. In addition, *Penstemon scariosus* var. *albifluvis* occurs at lower elevation oil shale barrens near the White River along the Utah-Colorado state-line (FWS 2007b).

White River beardtongue is an herbaceous perennial, about 6 to 20 inches tall. It has multiple clusters of upright stems with opposite leaves that are linear to linear-lanceolate. The flowers bloom in late May to June when the woody caudex reaches more than 4 centimeters. The flowers are light blue to lavender in color with seeds produced by late June. Due to the presence of the woody caudex, the plant is believed to be long-lived (FWS 2007b).

Distribution and Habitat Requirements

Known populations of White River beardtongue are limited to a 20-mile arc that extends from Raven Ridge west of Rangely in Rio Blanco County, Colorado, to the vicinity of Willow Creek in Uintah County, Utah (78 FR 47595)

White River beardtongue is endemic to the oil shale barrens found in semi-barren openings in Pinyon-juniper-desert shrub or desert shrub communities on substrates composed of fine textured soils and shale fragments weathered from the Green River Formation of the Uinta Basin of northeastern Utah and

adjacent Colorado. This geologic formation covers more than 100 square miles of area in Utah and Colorado; however, the species currently occupies less than 1 percent of the extent of oil shale barrens available in Colorado and Utah. It is frequently found on white or red soil at an elevation of 5,000 to 6,680 feet. Associated vegetation includes shadscale, rabbitbrush, Indian ricegrass, saline wildrye, sagebrush, and Barneby's thistle (*Cirsium barnebyi*) (FWS 2007b).

Primary Threats to Survival

The 2013 proposed rule to list Graham's beardtongue and White River beardtongue as Threatened identified present and potential energy exploration and development as the predominant threat to the continued existence of these species (78 FR 47590). Additional threats are invasive weeds and climate change. Livestock grazing, unauthorized collection, road maintenance and construction, wildfire, and small population size were determined not to be threats to these species at present (78 FR 47602-47605).

Occurrence in the Project Area

White River beardtongue is in Uintah County, Utah, and western Rio Blanco County, Colorado, near the White River to the vicinity of Evacuation Creek and in the vicinity of Willow Creek (FWS 2011c). Populations are located along the White River, near the Utah-Colorado border, near Links U240 and C220. The nearest conservation area for White River beardtongue is approximately 5 miles from Link U242 in Utah.

J.6.2 Special Status Fish and Wildlife

J.6.2.1 Federally Listed Threatened, Endangered, Candidate, and Proposed Fish and Wildlife Species

Black-footed Ferret (*Mustela nigripes*) – FWS: Endangered, Experimental/Non-essential; State: Wyoming, Colorado, Utah

Regulatory Status

The black-footed ferret was designated as endangered by the Bureau of Sport Fisheries and Wildlife in 1966. The species was subsequently listed as threatened with extinction under the Endangered Species Preservation Act on March 11, 1967 (32 FR 4001) and as endangered under the ESA on June 2, 1970 (35 FR 8491-8498). No critical habitat has been designated for the species. Eight reintroduced black-footed ferret populations have been designated as Nonessential Experimental under Section 10(j) of the ESA. The FWS initiated a 5-year species status review for the black-footed ferret on July 7, 2005 (70 FR 39326-39327). In the 2008 status review summary, the FWS recommended no change in status and a Recovery Priority Number of 2C (FWS 2008b).

On December 17, 2012, FWS announced the availability of the *Draft Black-footed Ferret Programmatic Safe Harbor Agreement and Environmental Assessment* for comment by the public and federal, state, tribal, and local agencies. The safe harbor agreement is part of a larger new multi-agency partnership to expand black-footed ferret recovery efforts. The comment periods for the safe harbor agreement closed on February 22, 2013.

The current Black-footed Ferret Recovery Plan was approved in 1988 (FWS 1988b). This plan replaced the 1978 recovery plan, which was drafted when no extant, wild black-footed ferrets were thought to exist (Linder et al. 1978). The 1988 recovery plan does not include any delisting criteria for the species (FWS 1988b). FWS published the Black Footed Ferret Spotlight Species Action Plan on August 19, 2009. The action plan provided some interim guidance for the recovery of the species. An updated recovery plan is expected to be available in 2014.

Taxonomy and Life History

The black-footed ferret was first formally described by John Audubon and James Bachman in 1851 (Clark 1986). The species is 1 of 14 members of the genus *Mustela* and 1 of 3 species in the Subgenus *Putorius*, which also includes the Siberian polecat (*Mustela eversmanni*) and the European polecat (*M. putorius*) (Hillman and Clark 1980). The black-footed ferret is endemic to North America and is the only ferret species native to the Americas (FWS 2008b). There are no recognized subspecies.

The black-footed ferret co-evolved with prairie dogs (*Cynomys* spp.) in North America and is considered to be a prairie dog obligate. The ferret is entirely dependent on prairie dog colonies, utilizing prairie dog burrows for shelter and den sites and preying almost exclusively on prairie dogs (Biggins 2006). Female black-footed ferrets become sexually mature at 9 months with prime breeding age occurring from 1 to 3 years old (Clark 1989). Ferrets breed between March and May and females can have multiple estrus cycles. Gestation lasts 42 to 45 days and kits are born between April and June (Hillman and Clark 1980). Average litter size is 3 kits (Forrest et al. 1988). Kits generally disperse in late September and early October, with males typically dispersing to different prairie dog towns and females remaining near their mother's home range (Clark 1989).

Black-footed ferrets are solitary except during the breeding season and when mothers are caring for kits. Ferrets are strongly nocturnal and spend much of the day below ground among several burrows (Clark 1989). The average lifespan of wild black-footed ferrets is 3 to 4 years.

Distribution and Habitat Requirements

As a prairie dog-obligate, the black-footed ferret is associated exclusively with prairie dog colonies in the grasslands and semi-desert shrublands of North America. The historical distribution of the black-footed ferret was closely associated with the ranges of the black-tailed prairie dog (*Cynomys ludovicianus*), the white-tailed prairie dog (*C. leucurus*), and the Gunnison's prairie dog (*C. gunnisoni*). The species historical range has been estimated at nearly 250 million acres across Arizona, Colorado, Kansas, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, Utah, and Wyoming as well as Alberta and Saskatchewan (Clark 1989).

The significant reduction in the distribution and abundance of prairie dogs throughout North America during the twentieth century resulted in the near extirpation of the black-footed ferret (Esch et al. 2005). The species was thought to be extinct until the discovery of a small population near Meeteetse, Wyoming in 1981. After declining to 18 individuals, all members of the Meeteetse population were captured and placed in a captive breeding program in 1987 (FWS 1988b). Since 1991, 18 black-footed ferret reintroduction projects have been conducted in eight states and Mexico (FWS 2008b). Experimental, non-essential populations have been established at eight reintroduction sites in the United States including:

- Shirley Basin, Wyoming (56 FR 41473)
- Conata Basin/Badlands, South Dakota (59 FR 42682)
- Charles M. Russell National Wildlife Refuge, Montana (59 FR 42696)
- Aubrey Valley, Arizona (61 FR 11320)
- Coyote Basin, Colorado/Utah (63 FR 52823)
- Cheyenne River Sioux Reservation, South Dakota (65 FR 60879)
- Rosebud Sioux Reservation, South Dakota (68 FR 26498)

Reintroduction projects not utilizing the experimental, non-essential designation have been completed in Chihuahua, Mexico (2001), Lower Brule Indian Reservation, South Dakota (2006), Wind Cave National Park, South Dakota (2007), Espee Ranch, Arizona (2007), Logan County, Kansas (2007), Northern Cheyenne Indian Reservation, Montana (2008), and Vermejo Ranch, New Mexico (2008)(FWS 2008b).

Four reintroduction sites (Aubrey Valley, Cheyenne River Indian Reservation, Conata Basin, and Shirley Basin) currently meet the population objectives for reintroduced populations outlined in the 1988 Recovery Plan and are considered successful by the (FWS 2008b). Two populations (Badlands and Rosebud Sioux Reservation in South Dakota) are improving; four (Charles M. Russell National Wildlife Refuge, Coyote Basin, Wolf Creek, and Janos, Mexico) are marginal; and the remaining populations are either unsuccessful or too recent to categorize. The FWS currently estimates there are 422 breeding adult black-footed ferrets across all reintroduced populations (FWS 2008b).

Primary Threats to Survival

The historical decline in the black-footed ferret occurred concurrently with the reduction in the distribution and abundance of prairie dogs in North America. The primary causes of the species decline included conversion of native grassland habitats to agriculture, large scale eradication of prairie dogs, and disease (Esch et al. 2005). Despite several successful reintroductions, the black-footed ferret remains one of the most endangered mammals in the North America.

The current threats to species recovery include habitat loss and modification, disease, and the lack of adequate regulatory mechanisms (FWS 2008b). The FWS estimates that approximately 97 percent of suitable habitat from pre-European times has been lost, and the fragmentation/loss of large prairie dog colonies currently limits the ability of the remaining habitat to support ferrets. Sylvatic plague affects both ferrets and prairie dogs, and the disease continues to be a primary threat to the black-footed ferret. Plague has caused the suspension of reintroduction efforts at three sites and limited recovery at two other sites (FWS 2008b). In 2008, plague was documented in prairie dogs at Conata Basin, which supports the most successful reintroduced ferret population. Finally, the lack of regulatory mechanisms to protect prairie dog colonies from control and eradication efforts as well as recreational shooting currently represents a significant threat to the recovery of the black-footed ferret.

Occurrence in the Project Area

All known black-footed ferret populations are descended from reintroduced, captive-bred animals. There are two reintroduction sites in the study area: the Shirley Basin/Medicine Bow Management Area (Shirley Basin) and the Northwestern Colorado/Northeastern Utah Black-footed Ferret Experimental Population Area (ExPA).

The Shirley Basin site encompasses approximately 2,068 square miles in Carbon, Albany, and Natrona counties. This area is approximately 20 miles northeast of Rawlins, Wyoming. The first release of captive-raised black-footed ferrets occurred in the Shirley Basin in 1991. Since that date, 534 individuals have been released at this site. The site was estimated to support approximately 203 individuals in 2011 and represents the second largest black-footed ferret population in North America (FWS 2008b). Although the Shirley Basin supports the only known extant population of wild black-footed ferrets in Wyoming, there are numerous white-tailed prairie dog complexes in the planning areas for both the BLM Rawlins and Rock Springs Field Offices that represent suitable habitat for the black-footed ferret. However, the number of prairie dog complexes that are large and dense enough to support a population of black-footed ferrets is low.

The ExPA encompasses portions of Rio Blanco and Moffat counties in Colorado, Sweetwater County in Wyoming, and Uintah and Duchesne counties in Utah. The ExPA has been separated into the Northwestern Colorado Experimental Population Sub-Area and the Northeastern Utah Experimental Population Sub-Area. In the Northwestern Colorado Sub-Area, the Little Snake Black-footed Ferret Management Area and the Wolf Creek Management Area were established as specific reintroduction sites. The Little Snake area is located in northwest Moffat County, Colorado, along the Colorado/Wyoming border. However, ferrets have not been released into this area due to observed decline

in white-tailed prairie dog populations. The Wolf Creek area is located in Moffat and Rio Blanco counties in northwest Colorado. Ferret releases in the Wolf Creek NEP northeast of Rangely, Colorado, were initiated in 2001, and 254 individuals have been released at this site. The Wolf Creek population reached at least 16 individuals (FWS 2008b), but no recent counts are available. The population had, to some degree, merged with the Coyote Basin population in Utah (78 FR 23948-23949). Further reintroductions are not currently being implemented due to a recent plague epidemic in white-tailed prairie dog populations.

In the Northeastern Utah Sub-Area, the Coyote Basin Black-footed Ferret Management Area was established as the specific reintroduction site. The Coyote Basin area is located in Uintah County, Utah, along the Utah/Colorado border and includes the Snake John Reef Subcomplex and the Coyote Basin Subcomplex. Since 1999, 424 black-footed ferrets have been released into the Coyote Basin NEP. Reproduction was confirmed in Coyote Basin in 2000, and the population was estimated to have reached 25 individuals (FWS 2008b). However, the population rapidly declined to possibly a single individual shortly thereafter (78 FR 23948-23949).

Bonytail (*Gila elegans*) – FWS: Endangered; State: Colorado, Utah

Regulatory Status

The bonytail was first proposed for listing as an endangered species under the ESA on April 24, 1978, because of alteration and destruction of habitat that had greatly reduced populations and would continue to threaten their existence (43 FR 17375). The FWS determined the species to be endangered and released the final rule on April 23, 1980 (45 FR 27710).

Critical habitat for the bonytail and other listed Colorado River fish was proposed in 1993 (58 FR 6578-6589), and designated in 1994 (59 FR 13374-13400). The designation included seven reaches of the Colorado River system, including portions of the Colorado, Green, and Yampa rivers in the Upper Basin and the Colorado River in the Lower Basin, totaling 312 river miles. Designated critical habitat for the bonytail in the Project area includes portions of the upper Colorado River (northeast of Wayne County, Utah), portions of the Green River (north of Wayne County, Utah), and the Yampa River. On April 18, 2007, the FWS initiated a 5-year species status review (72 FR 19549). The bonytail is also included in the Lower Colorado River Multi-Species Conservation Program (2004).

A recovery plan for the bonytail was published on August 1, 2002. To address unique threats and site-specific management actions, the entire population of the bonytail has been reduced to upper and lower basin recovery units. The upper basin recovery subunit is composed of the Green River and upper Colorado basin and the lower basin recovery unit includes the mainstem and tributaries of the Colorado River from Lake Mead downstream to the southerly International Boundary with Mexico. The species may be downlisted from endangered to threatened, if during a 5-year period: (1) one (upper basin recovery subunit) and two (lower basin recovery subunit) genetically and demographically viable, self-sustaining populations of more than 4,400 adults are maintained; (2) a genetic refuge is maintained in a suitable location in the lower basin recovery unit such as Lake Mohave or Havasu; and (3) site-specific management tasks to minimize or remove threats have been identified, developed and implemented. Delisting can occur if all three goals listed above are maintained for an additional 3 years past downlisting and a necessary level of protection is attained (FWS 2002c).

Taxonomy and Life History

The bonytail, also referred to as the bonytail chub in the 1980 listing rule and other documents (FWS 2002a), originally was collected and described from the Zuni River, New Mexico, in 1853 by Baird and Girard of the Sitgreaves Expedition (Minckley and Marsh 2009). The bonytail is a member of a unique

assemblage of 35 fish species native to the Colorado River Basin. Identification of juvenile bonytail versus the similar, closely related roundtail chub (*Gila robusta*) can be particularly difficult, and some historical distribution records are questionable as a result (FWS 2002a).

The bonytail is a relatively large minnow (family Cyprinidae) endemic to the Colorado River Basin. The bonytail and several related species have unique morphological adaptations to the flow regimes of the historic Colorado River mainstem and tributaries. Adult bonytails are characterized by a small head and an elongated, laterally compressed body with a long, thin caudal peduncle and a slightly humped back (Nevada Department of Wildlife 2007). Adult bonytails can reach a maximum size of 22 inches (Bozek et al. 1984). The scales are small, reduced in number over part of the fish, and may be embedded and the eyes are relatively small—all thought to be adaptations to high-suspended sediment loads and turbidity that characterized the Colorado River system prior to the construction of dams (Arizona Game and Fish Department [AZGFD] 2001). The narrow tail terminates in a V-shaped caudal fin (FWS 2002a).

Natural reproduction of the bonytail was last documented in the Green River in Dinosaur National Monument in the early 1960s (Vanicek and Kramer 1969). The species is a broadcast spawner; in the wild females released an estimated 10,000 adhesive eggs while hatchery females yield an average of 25,000 eggs (Hamman 1982). In Lake Mohave and the lower basin, spawning occurs in May, whereas spawning occurs in June and July in the upper basin. By 2002, more than 83,000 hatchery-reared bonytails had been released into Lake Mohave (Valdez and Clemmer 1982). In rivers, adults eat primarily terrestrial insects, plant debris, and algae, and the young eat aquatic insects. In lakes, the bonytail has been observed feeding on algae and plankton (AZGFD 2001).

Distribution and Habitat Requirements

Formerly abundant throughout the Colorado River and its larger tributaries, the bonytail has been found from the Green River in Wyoming and Utah; the Yampa and Gunnison rivers in Colorado; the Colorado River in Arizona, Colorado, Nevada, and California; San Juan River in New Mexico; and the Gila and Salt rivers in Arizona (FWS 2002c). Presently, the bonytail is one of the most critically imperiled North American freshwater fishes. The only known wild bonytails are an unknown number of large, old adults in Lake Mohave on the lower Colorado River and scattered individuals in the upper Colorado River basin (AZGFD 2001). Known locations include the Yampa River in Dinosaur National Monument, the Green River in Gray and Desolation canyons, the Colorado River near Black Rocks (Kaeding et al. 1986) and Cataract Canyon (59 FR 13374), Lake Mohave near the Arizona-Nevada border, and Lake Havasu in Arizona and California (FWS 2002c).

The bonytail was historically common in warm-water reaches of larger rivers from Mexico to Wyoming. Little is known, however, about the specific habitat requirements of bonytails because the species was extirpated from most of its historic range prior to extensive fishery surveys (FWS 2002c). Current habitat is found in mid-sized to large rivers, usually near deep swift water, in flowing pools and backwaters, over mud or rocks (Valdez et al. 1990). It is hypothesized, based on available distribution data, that flooded bottomland habitats are important growth and conditioning areas for bonytails, particularly as nursery habitats for young (FWS 2002c).

Primary Threats to Survival

Threats to the species include streamflow regulation, habitat modification or destruction, and competition with, and predation by, nonnative fish species. Historically, the species inhabited the large turbid mainstream rivers of the Colorado River Basin that alternated between swift water canyons characterized by torrential rapids and slow, meandering, sand bottomed stretches. The Colorado River has been greatly altered by dams and diversions eliminating much of the bonytail's original habitat. Currently, the lower Colorado River basin is an alternating series of reservoirs and cold tailwaters that do not provide the

warm water temperature needed for bonytails to spawn. Predation by introduced species is also likely to have been an important factor in the decline of the species. Species such as bass, sunfish, catfish, red shiner, and the redside shiner have been suggested to be the main problem (45 FR 27710). Stocking efforts have been adjusted to release larger size classes of bonytails in an attempt to reduce the risk of predation on juveniles, but even the largest individuals regularly stocked (approximately 10 inches) appear to be susceptible to predation by striped bass (Morone saxatilis) in reservoirs (Karam and Marsh 2010).

Occurrence in the Project Area

The bonytail is endemic to the Colorado River Basin, but no reproducing populations are thought to persist in the wild (FWS 2002c). The last documented capture of a bonytail in the Project area was during the late 1980s in Desolation/Gray Canyon (Carbon and Uintah counties, Utah). Designated critical habitat for the bonytail in the Project area includes portions of the upper Colorado River (northeast of Wayne County, Utah), portions of the Green River (north of Wayne County, Utah), and the Yampa River. Water depletions in the upper Colorado River system in Wyoming, Colorado, and Utah could affect bonytail or its habitat.

Boreal Toad (*Bufo boreas boreas*) – FWS: Petitioned; BLM: Wyoming, Colorado, Utah; USFS: Ashley, Manti-La Sal, and Uinta National Forests; State: Wyoming, Colorado, Utah

Regulatory Status

On April 12, 2012, the FWS announced a 90-day finding on a petition to list either the Eastern population or the Southern Rocky Mountain population of the boreal toad as a distinct population segment (DPS) that is endangered or threatened under the ESA and to designate critical habitat. Based on the review, FWS found that the petition presented substantial scientific or commercial information indicating that listing the as a DPS may be warranted. FWS initiated a 12-month review of the status of the eastern population to determine if listing it as a DPS is warranted.

Distribution and Habitat Requirements

The western (boreal) toad occurs in the montane areas associated with permanent water bodies in a variety of habitats including riparian, mountain shrub, mixed conifer, and aspen-conifer assemblages. It breeds in small pools, beaver ponds, reservoirs, and the backwaters and side channels of creeks and rivers. The Project area is outside the known range and distribution of the species in Wyoming and Colorado (Keinath and McGee 2005), but is within the known range of the species in Utah (Hogrefe et al. 2005).

Primary Threats to Survival

The species is threatened by pollution, pesticide use, habitat loss, fragmentation, degradation, and disease. Populations in Utah have declined and extant populations are irregularly distributed within the historic range (Hogrefe et al. 2005).

Occurrence in the Project Area

Three known occurrences are within 1 mile of alternative routes in Utah. One is south of Helper along Link U522; another is at Kyune along Link U524; and the third is 4 miles north of Nephi along Link U650. The species is known to occur in Strawberry Reservoir, which lies within 3 miles of Link U420. The boreal toad may be present in the Project area in the Book Cliffs and San Pitch, Uinta, and Wasatch mountains and valleys.

Canada Lynx (*Lynx canadensis*) – FWS: Threatened; USFS: Ashley, Uinta, Wasatch-Cache; State: Wyoming, Colorado, Utah

Regulatory Status

The North Cascades population of the Canada lynx in Washington State was petitioned (as the North American Lynx) for ESA listing in 1991, but the petition was not found to present substantial information that listing was warranted (57 FR 46007-46012). The species was petitioned again, for the entire population in the 48 contiguous states, in 1994 (Biodiversity Legal Foundation 1994). The petition additionally requested the Canada lynx population in the southern Rocky Mountains receive an emergency listing. The FWS found the petition presented substantial information that listing may be warranted, but that an emergency listing was not warranted, and noted that a 12-month review was ongoing as required by a court settlement (59 FR 44123-44124). That review found that listing the Canada lynx was not warranted (59 FR 66507-66509).

In 1997, the FWS again reviewed the status of the Canada lynx, determined that the population in the 48 contiguous states qualified as a DPS, determined that listing was warranted but precluded by higher listing priorities, and added the Canada lynx to the list of candidate species (62 FR 49398-49397). The species was proposed for listing in 1998 (63 FR 36994-37013), and was listed as threatened in 2000 (65 FR 16053-16086). At that time, the DPS boundary was listed as including 14 states currently or historically occupied by the species.

Critical habitat for the Canada lynx was proposed in 2005 in Maine, Minnesota, Montana, and Washington (70 FR 68294-68328) and designated in 2006 in Minnesota, Montana, and Washington (71 FR 66008-66061). The proposed critical habitat in Maine was removed in the final rule. A revision to the critical habitat rule was proposed in 2008 (73 FR 10860-10896), and a final rule revising the designated critical habitat was issued in 2009 (74 FR 8616-8702). The revision increased the area of all previously designated critical habitat units (CHU), created a CHU in Maine, and created an additional CHU in southern Montana and western Wyoming in the Greater Yellowstone Ecosystem. A second revision was proposed in 2013 (78 FR 59429-59474) that increased the area in previously designated CHUs and defined the Contiguous United States DPS as including all Canada Lynx in the 48 contiguous states, wherever found. A final rule revising the DPS boundary and designated critical habitat was issued in 2014 (79 FR 54781-54846). No designated critical habitat is present in the Project area (79 FR 54781-54846). The nearest CHU (Greater Yellowstone Area) is in northwestern Wyoming.

Taxonomy and Life History

The Canada lynx is one of two North American members of the genus Lynx, the other being the Bobcat (L. rufus), a much more widespread, generalist species. Two additional species are present in Europe and northern Asia (Wilson and Reeder 2005). Several subspecies of the Canada lynx may be described, ranging from three (Wilson and Reeder 2005) to eight (Tumlison 1987). However, the ESA listing for the species does not address subspecies, as all individuals in the 48 contiguous states (the ESA-listed DPS) are a single subspecies.

Canada lynx are predators, specializing in other mammals and especially snowshoe hares (Lepus americanus). Other prey may be taken opportunistically. However, Canada lynx population size closely follows increases and declines of snowshoe hare populations in a regular cycle that, absent external causes of Canada lynx population declines, appears to be the major factor controlling Canada lynx population size (Stenseth et al. 1997). As such, their habitat preferences also overlap strongly with snowshoe hares, and both typically are found in boreal forests with a dense understory, and with deep snow in winter. Snowshoe hares are important prey rangewide, but Canada lynx may take alternate prey more often in the southern part of their range in the ESA-listed DPS (Roth et al. 2007; Murray et al. 2008).

Canada lynx in the southern portion of their range require larger home ranges than northern populations, likely due in part to the patchiness of high-elevation habitat in the Rocky Mountains. Canada lynx home ranges measured in Wyoming and Montana ranged from 40 to 85 square miles, based on total annual use. However, that area is divided approximately in half by winter and summer use (Squires and Laurion 1999). Reintroduced Canada lynx in Colorado used home ranges averaging 106 to 181 square miles, while individuals in Maine used home ranges averaging between 12 and 26 square miles (79 FR 54781-54846).

Canada lynx den in dense cover, such as downed trees, and give birth in mid-summer to litters averaging 2.8 kittens (79 FR 54781-54846; Tumlison 1987). Although they mature within approximately 1 year, most do not reproduce until their second year, and reproduction is higher in years of high snowshoe hare abundance.

Distribution and Habitat Requirements

Canada lynx are widespread across northern North America, largely following the distribution of boreal forests across Canada and Alaska, extending into mixed hardwood forests in New England and the Great Lakes region, and extending south into the Rocky Mountains and Pacific Northwest in montane coniferous woodlands (Agee 2000).

The ESA-listed DPS, which includes all Canada lynx in the 48 contiguous states wherever they are found, is primarily restricted to four regions, each with some measure of connectivity to the core range of the species in Canada. The New England population is strongest in parts of Maine, but individuals occasionally are reported from Vermont and New Hampshire, and trapping records indicate the species has been found rarely as far southwest as New York and Pennsylvania. The Great Lakes population is located primarily in northern and eastern Minnesota with additional records throughout Wisconsin and Michigan. The Rocky Mountains population extends from Idaho and Montana into Wyoming and Utah and now includes the reintroduced population in Colorado. A population also is present in the northern Cascades in Washington (79 FR 54781-54846). For the Rocky Mountains population in particular, connectivity to Canada is somewhat constrained (Squires et al. 2013), and maintaining that connectivity may be critical to the survival of the population (Schwartz et al. 2004).

Primary Threats to Survival

Canada lynx at the southern edge of their range are found in patchy blocks of suitable habitat at relatively high elevations, which are separated by low-elevation valleys without suitable habitat. Canada lynx in Wyoming, Montana, and Idaho typically are found at elevations above 4,100 feet, while those in Colorado typically are found above 9,500 feet (79 FR 54781-54846). This avoidance of low-elevation valleys contributes to metapopulation structure, where dispersal among populations can be critical to avoiding genetic effects of small population size and stochastic events in populations. Highways, agriculture, and other types of development can reduce dispersal rates across the landscape.

When determining that listing the Canada lynx was warranted, the primary factor identified was a lack of existing regulatory mechanisms to guide maintenance of suitable habitat for the species (65 FR 16053-16086). Logging, fire management, other forestry practices, recreation, and travel management can all contribute to declines in populations that are inherently sensitive due to their small size. For example, Canada lynx appeared to strongly avoid forests subject to thinning treatments (Squires et al. 2013).

Hybrids between Canada lynx and bobcats have been recorded in Minnesota, although it is unclear whether the resulting hybrids were fertile and could cause genetic pollution of Canada lynx populations, or sterile and lost reproductive opportunities or potential competitors (Schwartz et al. 2004).

Canada Lynx Occurrence in the Project Area

Areas of potential Canada lynx habitat are crossed by alternative routes considered for the Project. However, only one occurrence has been noted in the Project area and within the past 30 years. Lynx hair samples were collected in Manti-La Sal National Forest along Link U630. This occurrence is crossed by the centerline of Link U630.

Colorado Pikeminnow (*Ptychocheilus lucius*) – FWS: Endangered; State: Colorado, Utah

Regulatory Status

Colorado pikeminnow was listed as endangered (as the Colorado River squawfish) under the Endangered Species Preservation Act (ESPA) on March 11, 1957 (32 FR 4001) and as endangered under the ESA on its passage in 1973 (United States Code (U.S.C.), Title 16, Sections 1531-1544). Two reintroduced Colorado pikeminnow populations have been designated as Nonessential Experimental Populations (NEP) under Section 10(j) of the ESA (50 FR 30188). An additional reintroduced population has been proposed for designation as an NEP (52 FR 32143), but the ruling has never been finalized. A 5-year review was initiated on April 18, 2007 (72 FR 19549) and completed in 2011 (FWS 2011a).

The current Colorado Pikeminnow Recovery Plan was approved August 28, 2002. To address unique threats and site-specific management actions, the entire population of the Colorado pikeminnow has been reduced to three recovery subunits of the upper Colorado River Basin: the Green River, the upper Colorado River, and the San Juan River subbasins. The species may be downlisted from endangered to threatened, if during a 5-year period: (1) one genetically and demographically viable, self-sustaining population of more than 2,600 adults is maintained in the Green River subbasin recovery unit; (2) a self-sustaining population of at least 700 adults is maintained in the upper Colorado River subbasin recovery unit; (3) a target number of 1,000 age 5+ fish is established in the San Juan River subbasin recovery unit; and (4) site-specific management tasks to minimize or remove threats have been identified, developed and implemented. Delisting can occur if the three goals listed above are maintained for an additional 7 years past downlisting and a necessary level of protection is attained (FWS 2002a).

Taxonomy and Life History

The Colorado pikeminnow is the largest North American member of the minnow family (*Cyprinidae*). The estimated maximum total size is 6 feet and 80 pounds, although averages are believed to be less than 3 feet and between 4 to 9 pounds (Miller 1961). It is one of three large cyprinids of the genus *Ptychocheilus* native to the western United States. The species has a flattened head and elongated body. They are adapted to life in rivers with seasonally variable flow and high silt loads. The mouth is large and nearly horizontal with slender teeth adapted for grasping and holding prey. It is the top native carnivore of the Colorado River system. Small individuals feed primarily on waterfleas, copepods, and chironamids. Large adults prey mainly on other fish (FWS 2002a).

The Colorado pikeminnow spawns under decreasing flow regimen with increasing temperatures in summer when the water temperature is at least 68 to 72 degrees Fahrenheit (°F), generally after June. The pikeminnow makes an extensive spawning migration, with one recorded individual traveling 127 miles. They are broadcast spawners that deposit their eggs on cobble substrates in riffles and runs. Eggs hatch in less than 1 week when larvae then enter stream drift and are transported downstream for about 6 days, traveling an average distance of 99 miles to reach low gradient nursery areas. The Colorado pikeminnow becomes mature in 5 to 7 years and may live 30 years or more. Natural reproduction has been recently observed in the Green, Yampa, upper Colorado, Gunnison, and San Juan rivers (FWS 2002a).

Distribution and Habitat Requirements

The Colorado pikeminnow was once widespread in the large rivers of the Colorado River and major tributaries, but its historical distribution was much greater than at present. The last capture of a wild Colorado pikeminnow in the lower Colorado River was in 1975 (Minckley et al. 2003). The three remaining wild populations are found in the Green, upper Colorado, and San Juan River subbasins.

In the Green River Subbasin, the Colorado pikeminnow is present in the following rivers:

- Green River (from Lodore Canyon to the Colorado River confluence)
- Yampa River (from Craig, Colorado, to the Green River confluence) (FWS 2002b)
- Little Snake River (Wyoming to the Yampa River confluence) (Marsh et al. 1991)
- White River (Taylor Draw Dam to the Green River confluence)
- Price River (lower 89 miles above Green River confluence)
- Duchesne River (lower 6 miles above the Green River confluence)

In the Upper Colorado River Subbasin, the Colorado pikeminnow is present in the following rivers:

- Upper Colorado River (from Palisade, Colorado, to Lake Powell inflow)
- Gunnison River (lower 33 miles above Colorado River confluence)
- Dolores River (lower 1 mile above Green River confluence)

In the San Juan River Subbasin, the species is found only in the San Juan River (from Shiprock, New Mexico, to the Lake Powell inflow) (FWS 2002b).A refuge population was successfully established at the Dexter National Fish Hatchery in Dexter, New Mexico. From 1981 to 1990, as many as 623,000 Colorado pikeminnow from the refuge population were reintroduced to two designated non-essential experimental population locations in the Gila River drainage of Arizona (50 FR 30188):

- Salt River (Gila County) – from Roosevelt Dam upstream to U.S. Highway 60 Bridge
- Verde River (Gila and Yavapai counties) – from Horseshoe Dam upstream to Perkinsville (50 FR 30188)

A rule was proposed in 1987 to designate an additional non-essential experimental population in the Colorado River Basin, but has never been finalized:

- Lower Colorado River (Yuma and LaPaz counties, Arizona and Imperial, Riverside, and San Bernadino counties, California) – between Imperial and Parker Dams (52 FR 32143)

The Colorado pikeminnow is found in warm-water reaches of the Colorado River mainstem and larger tributaries. Adults have been found in various habitats including deep, turbid strongly flowing water; eddies; runs; flooded bottoms; and backwaters. Lowlands inundated during spring high flow appear to be important habitats for health and reproductive conditioning as the fish use these habitats to offset winter stress and replenish energy stores needed for long migrations and spawning. In winter, adults are most commonly found in shallow, ice-covered shoreline areas (FWS 2002a).

Adults migrate long distances (Tyus and McAda 1984) and seek white-water canyons as breeding grounds. They appear to select river canyons receiving groundwater discharge from sandstone/limestone seeps and return to the same spawning site every year. Only two principal spawning sites have been identified, both in the Green River Subbasin. One site is near Three Fords Canyon in Gray Canyon of the Lower Green River and the other is in the lower 20 miles of the Yampa River (FWS 2002a). After hatching, the larvae drift downstream, and then move to shoreline areas and backwaters. Postlarval pikeminnow occupy shallow, ephemeral backwaters formed in late summer by receding water levels (UDWR 1997).

Primary Threats to Survival

Threats to the Colorado River Basin endangered fishes include streamflow regulation, habitat modification or destruction, and competition/predation from nonnative fish species. Historically, the species inhabited the large turbid mainstream rivers of the Colorado River Basin that alternated between swift water canyons characterized by torrential rapids and slow, meandering, sand bottomed stretches. The Colorado River has been greatly altered by dams and diversions eliminating much of the Colorado pikeminnow original habitat. Currently, the lower Colorado River basin is an alternating series of reservoirs and cold tailwaters that do not provide the warm water temperature needed for the pikeminnow to spawn. Predation by introduced species is also likely to have been an important factor in the decline of the species. Species such as bass, sunfish, catfish, red shiner, and the redside shiner have been suggested to be the main problem as they are efficient predators that prey on the eggs and young (45 FR 27710).

Occurrence in the Project Area

The Colorado pikeminnow is endemic to the Colorado River Basin. In the Project area, there are two remaining populations of the Colorado pikeminnow located in the Green and upper Colorado River Basins. Designated habitat in the Project area includes portions of the upper Colorado and Green rivers north of Wayne County, Utah and the Price, Gunnison, White, Little Snake, Duchesne, and Dolores rivers. The only two known spawning sites of the species are also in the Project area near Three Fords Canyon in the Gray Canyon area of the Green River (Carbon and Uintah counties) and the lower 20 miles of the Yampa River (Moffat County, Colorado). Water depletions in the upper Colorado River system in Wyoming, Colorado, and Utah could affect Colorado pikeminnow or its habitat.

Gray Wolf (*Canis lupus*) – FWS: Species of Concern; State: Colorado, Utah

Regulatory Status

The gray wolf has undergone a lengthy, complex history regarding its listing status under the ESA. Although this section does not present a full history of all listing actions and related court decisions, a summary is provided of the original listing history of the species and recent determinations that affect the listing status of the species in the Project area.

The timber wolf, considered at the time an eastern subspecies of the gray wolf (*C. l. lycaon*), was listed under the ESPA in 1967 (32 FR 4001). The northern Rocky Mountain wolf (*C. l. irremotus*) was listed under the ESCA in 1973 (U.S.C. Title 16, Sections 1531-1544), and the species was listed under the ESA in 1978 throughout the contiguous United States, acknowledging that previous subspecies names and boundaries were likely inaccurate (43 FR 9607-9615).

An NEP was designated in 1994 to allow for the reintroduction of the gray wolf into the northern Rocky Mountains, including the Greater Yellowstone Area (59 FR 60266-60281). The NEP boundary encompassed all of Wyoming, as well as southern Montana and southeastern Idaho.

The FWS designated the Northern Rocky Mountains population of gray wolves as a DPS in 2008, and delisted the DPS after determining recovery objectives had been met (73 FR 10514-10560). The gray wolf listing, including the NEP designation in Wyoming, was reinstated in response to a court order in 2008 (73 FR 75356-75371). In 2009, the FWS published a rule delisting gray wolves in the Northern Rocky Mountains DPS, except for the state of Wyoming where the species remained listed as an NEP (74 FR 15123-15188). The delisted portion of the Northern Rocky Mountains DPS was listed again in response to a court order in 2010 (75 FR 65574-65579). In 2011, the Northern Rocky Mountains DPS was delisted by legislation, although gray wolves in Wyoming remained listed as an NEP (76 FR 25590-

25592) until they were delisted in 2012 (77 FR 55530-55604). The listing of the gray wolf in Wyoming was reinstated in 2014, in response to a court order[1].

The gray wolf is not known to be present in Colorado or Utah, but sightings are reported anecdotally on occasion. These states were not a part of the Northern Rocky Mountains DPS, so the species remained listed as endangered. The FWS proposed to delist the gray wolf rangewide in 2013, but this rule has not been finalized to date (78 FR 60813-60815).

Taxonomy and Life History

Taxonomy of North American wolves has been subject to frequent revision and contradiction, as indicated above in the history of the species' listing under the ESA, and uncertainty continues to this day. Although up to 24 New World and 8 Old World subspecies have been described by some authors (Mech 1974, Wilson and Reeder 2005), many of these were considered invalid by later authors, and some have become extinct. As few as three or four subspecies may now be recognized in North America (78 FR 60813-60815). One former subspecies is now recognized as the eastern (or timber) wolf (C. lycaon). The red wolf (C. rufus) of the southeastern United States, listed as endangered under the ESA, is closely related to the eastern wolf, and both species appear to be more closely related to coyotes (C. latrans) than to the gray wolf (Wilson et al. 2000). One possible evolutionary and biogeographical explanation is that the common ancestor of the coyote, eastern wolf, and red wolf dispersed to and diverged in North America from the Eurasian gray wolf. These species later came into contact when gray wolves reached North America during a more recent interglacial period.

All North American wolf species are social and form packs of mostly related individuals led by a dominant male-female pair. Litter size averages six pups, which are raised in sheltered dens by the female. Gray wolves are mature at approximately 1 year, but may not reproduce until their second year. Gray wolves are almost exclusively carnivorous, cooperating to take large grazing mammals but also opportunistically capturing small mammals and birds (78 FR 60813-60815), and even fish in some populations (Darimont and Reimchen 2002). Gray wolves will prey on livestock directly and also will scavenge on livestock carcasses (Morehouse and Boyce 2011).

Distribution and Habitat Requirements

The gray wolf is currently found south of Canada only in northern Mexico, a few areas in the Rocky Mountains (reintroduction sites in Montana, Wyoming, and Idaho), northwestern Great Lakes region, and Cascade Mountains of northern Washington. Formerly, gray wolves were much more numerous in the Rocky Mountain states than in the southwestern United States. The gray wolf is a habitat generalist, with large stable home ranges and exclusive pack territories. Wolf packs generally consist of a breeding pair and offspring. Travel patterns across home ranges are influenced by elevation, topography, prey distribution, and climatic conditions; travel routes along roads, trails, and survey lines for efficiency are common (Paquet and Carbyn 2003). In addition to avoiding roads and human activity, the gray wolf selects den sites (natal and secondary) according to proximity of stable food and water resources; selecting for proximity to ungulate prey species and often denning along ungulate migration routes. Den sites also are located relative to adjacent wolf pack proximity. However, territory overlap with other predators occurs. Limiting factors include climate, prey density, human-induced mortality and disease (Paquet and Carbyn 2003).

[1] 13-698 – Defenders of Wildlife et al v. Jewell et al. United States 6th Circuit District Court, Eastern District of Tennessee.

Primary Threats to Survival

Human conflicts drive the primary threats to the ESA-listed population of the gray wolf, and human-caused deaths can be the majority of mortality for dispersing or resident wolves (Boyd and Pletscher 1999). Although wolves are generalists in their habitat and prey preferences to a degree, and tolerant of some human presence, the degree of disturbance, dispersal barriers, habitat modification, and conflicts with residents and livestock producers has rendered most of the lower and middle elevations within the range of the gray wolf unsuitable for their recovery. High road densities have been shown to increase gray wolf deaths from road mortality and shooting and decrease the probability of an area being occupied by gray wolves (Wydeven et al. 2001; Kaartinen et al. 2005). However, gray wolves also will travel opportunistically on low-use roads and trails that cross their home ranges (Whittington et al. 2005).

Management for the recovery of gray wolves in montane habitat in the Rocky Mountains often is seen as being in conflict with cattle and sheep grazing, as well as with hunting interests that are dependent on robust elk and deer populations (78 FR 60813-60815). In most recent cases where gray wolves have been delisted in a portion of their range, a hunting program or policy allowing lethal removal of gray wolves taking livestock has been implemented by the states.

Occurrence in the Project Area

Suitable habitat for the species occurs throughout the Project area. There are currently no known resident gray wolves in Utah or Colorado, although sightings are reported anecdotally on occasion. In the summer of 2014, a single gray wolf originating in northern Idaho dispersed through the Uinta Mountains in Utah, although its tracking collar failed and its current location is unknown (Prettyman 2014). Near the Project area in 2003, a single gray wolf was reported near Baggs, Wyoming. This wolf was a confirmed identification by Wyoming Game and Fish Department biologists; however, an exact location is not known.

Greater Sage-grouse (*Centrocercus urophasianus*) – FWS: Candidate; BLM: Wyoming, Colorado, Utah; State: Wyoming, Colorado, Utah

Regulatory Status

The greater sage-grouse is regulated by a complex and evolving array of federal and state regulations.

Federal Regulations and Policies

On March 4, 2010, the greater sage-grouse became a candidate species for listing as threatened or endangered under the ESA of 1973 (75 FR 13909). Prior to this rule, the FWS had listed the Washington state population of sage-grouse as a candidate for federal listing in 2001 (66 FR 22984). In both rules, the FWS stated that formal listing for the species is warranted, but is precluded by other higher priority listing actions. As a condition of a court approved settlement agreement, the FWS must make a final listing determination by the end of fiscal year 2015.

In advance of the 2015 listing determination, the FWS convened a Conservation Objectives Team (COT) of state experts and FWS representatives to develop conservation objectives to address greater sage-grouse habitat threats identified in the 2010 12-month finding. The final COT report identified key areas for conservation efforts (Priority Areas for Conservation, or PACs), identified key threats, and identified the extent to which the threats need to be reduced so that the species would not require the protections provided by the ESA (FWS 2013a).

The Bi-state Distinct Population Segment (DPS) of the greater sage-grouse, which is located in western Nevada and eastern California, was proposed for listing as a threatened species under the ESA in 2013 (79 FR 45420-45421) with critical habitat (78 FR 64328-64355)..

BLM Regulations and Policies

The greater sage-grouse is listed as a sensitive species by the BLM state offices in all three states crossed by the Project. Current BLM sage-grouse management is guided by the documents listed below.

BLM sensitive species are managed according to guidance provided by BLM Manual 6840. BLM's policies do not require consultation or conference on candidate species, but these species may be addressed in a BA as appropriate for the BLM's management objectives and the conservation of the species.

The BLM has issued national-level and state-level Instructional Memorandums (IM) that provide additional guidance for the management of sage-grouse. The BLM is currently revising applicable land-use plans to incorporate sage-grouse conservation measures.

In November 2004, the BLM Washington Office (WO) released its National Sage-Grouse Habitat Conservation Strategy (BLM 2004), which provides a framework for future conservation efforts by setting out broad goals and specific actions to meet those goals.

In March 2010, the BLM Washington Office issued Washington Office IM 2010-071 Gunnison and Greater Sage-grouse Management Considerations for Energy Development (BLM 2010b). These management considerations supplement the National Sage-Grouse Habitat Conservation Strategy. This IM identifies management actions necessary at some sites to ensure environmentally responsible exploration, authorization, leasing, and development of renewable and nonrenewable energy resources, including transmission projects, within the ranges of the Gunnison sage-grouse and greater sage-grouse.

In December 2011, the BLM Washington Office issued WO IM 2012-043 Greater Sage-Grouse Interim Management Policies and Procedures (BLM 2011b), which provides interim conservation measures applied to sage-grouse and sage-grouse habitats while BLM land-use plan revisions are occurring, and WO IM 2012-044 BLM National Greater Sage-Grouse Land Use Planning Strategy (BLM 2011c), which directs the BLM to consider all applicable conservation measures when revising or amending its resource management plans in greater sage-grouse habitat.

In February 2012, the BLM Wyoming State Office issued WY IM 2012-019 Greater Sage-Grouse Habitat Management Policy on Wyoming Bureau of Land Management Administered Public Lands including the Federal Mineral Estate (BLM 2012c). This IM provides guidance to BLM Wyoming Field Offices on sage-grouse habitat management for proposed activities and resource management planning.

U.S. Forest Service Regulations and Policies

USFS Manual 2670 contains legal authorities, objectives, policies, responsibilities, instructions, and guidance that direct the USFS when planning and executing assigned programs and activities. In October 2012, the USFS published *Interim Conservation Recommendations for Greater Sage-grouse and Greater Sage-grouse Habitat for Regions 1, 2, and 4*. These recommendations supplement the recommendations for sage-grouse contained in the *Chief's Letter to Regional Foresters in Regions 1, 2, 4, 5 and 6 for Sage-grouse and Sagebrush Conservation* (July 2010). These recommendations also promote consistency in management of activities on USFS land with BLM IM 2012-043. Additionally, the USFS is currently revising applicable LRMP to incorporate sage-grouse conservation measures.

State Regulations and Policies

In June 2003, Wyoming issued a statewide *Greater Sage-Grouse Conservation Plan* (State of Wyoming 2003). The plan was developed by the Wyoming Sage-Grouse Working Group and provides goals, tasks, and recommended management practices to guide sage-grouse planning and management efforts. In June 2011, the Governor of State of Wyoming issued Executive Order 2011-5, *Greater Sage Grouse Core Area Protection* (State of Wyoming: Office of the Governor 2011), which revised previous designations of sage-grouse core population areas, provided guidance specific to the siting and permitting of projects in core areas and established utility corridors in core areas.

In January 2008, the CPW issued the *Colorado Greater Sage-grouse Conservation Plan* (Colorado Greater Sage-grouse Steering Committee 2008). The purpose of the plan is to facilitate the conservation of greater sage-grouse and their habitats in Colorado. It identifies conservation measures and strategies to achieve this purpose. The plan is guided by local sage-grouse working groups. The *Conservation Plan for Greater Sage-grouse in Utah* was approved by the Governor in April 2013. The plan establishes incentive-based conservation programs for conservation of sage-grouse on private, local government, and School and Institutional Trust Lands Administration lands and regulatory programs on other state- and federally managed lands. The Conservation Plan also establishes sage-grouse management areas and implements specific management protocols in these areas. In addition to the conservation plan, UDWR published a *Greater Sage-Grouse Management Plan* in 2009 (UDWR 2009b). The management plan guides management of sage-grouse in Utah and seeks to protect, maintain and improve sage-grouse populations and habitats.

Wyoming Sage-grouse Local Working Groups

The Project would affect two conservation areas overseen by local sage-grouse working groups in Wyoming (from east to west): Bates Hole/Shirley Basin and South-central. These working groups have developed a non-binding conservation plan for sage-grouse management. All of the Wyoming working groups are in the process of updating their plans to bring them into compliance with Executive Order 2011-5 and WY IM 2012-019. The Wyoming working groups also are updating their plans with any other new information, changes, and/or occurrences.

Colorado Sage-grouse Local Working Groups

The Project would affect two conservation areas overseen by local sage-grouse working groups in Colorado: Northwest Colorado and Piceance/Parachute/Roan Creek.. These working groups have developed a non-binding conservation plans for sage-grouse management.

Utah Sage-grouse Local Working Groups

The Project would affect three conservation areas overseen by local sage-grouse working groups in Utah: Uinta Basin, Strawberry Valley and Castle County. These working groups have developed a non-binding conservation plan for sage-grouse management.

Taxonomy and Life History

Greater sage-grouse are the largest grouse found in North America and are uniquely adapted to and dependent on sagebrush (Artemisia spp.) for survival. In the 1990s, researchers documented morphological, behavioral and genetic evidence suggesting that sage-grouse in southwestern Colorado and southeastern Utah were distinct from sage-grouse elsewhere across their range (Hupp and Braun 1991; Kahn et al. 1999; Oyler-McCance et al. 1999; Young et al. 1994). In 2000, the Gunnison sage-grouse (C. minimus) was recognized formally by the American Ornithologists' Union (AOU) as a distinct

species, with sage-grouse across the remainder of the range being renamed greater sage-grouse (C. urophasianus).

Although as far back as the 1940s researchers have argued for subspecies classification between sage-grouse in eastern (C. u. urophasianus) and western (C. u. phaios) portions of the species' range (Aldrich 1946; Aldrich 1963; Aldrich and Duvall 1955) Morphological, behavioral, and genetic differences among some populations have been documented (Aldridge et al. 2008; Oyler-McCance et al. 2005; Taylor and Young 2006), though individuals are not differentiated at a distinct geographic boundary. The Bi-state DPS in eastern California and western Nevada, proposed for ESA listing, initially was petitioned for listing as a DPS of the subspecies C. u. phaios (Institute for Wildlife Protection 2002), although the proposal to list the DPS found that C. u. phaios was not a valid subspecies (75 FR 13910-14014).

Sage-grouse are polygamous and exhibit consistent breeding behavior on ancestral strutting grounds (leks) annually (Patterson 1952). During the breeding season, males display in early morning and evening hours, traveling up to 1.3 miles (Ellis et al. 1987) from the lek to day-use feeding and resting areas. Sage-grouse females retire into the vicinity of their nest location within a few days of being bred and remain relatively sedentary until they nest (Patterson 1952). A majority of sage-grouse females nest within 4 miles of the lek where bred (Colorado Greater Sage-grouse Steering Committee 2008). No concealment strategies are attempted at the nest except that afforded by natural cover and the female's cryptic plumage coloration pattern (Rassmussen and Griner 1938).

Egg laying takes 7 to 10 days, incubation lasts 25 to 29 days, and average clutch sizes are between 6.5 and 9.1 eggs (Patterson 1952; Schroeder et al. 1999). Reproductive effort (nesting propensity) estimates in sage-grouse range from 63 to 100 percent (Connelly et al. 2011); however, research on follicular development indicates that between 91 and 98 percent of females breed annually (Braun 1979). Nesting success in sage-grouse ranges from 15 to 86 percent and is typically around 50 percent (Connelly et al. 2011). Re-nesting rates less than 40 percent are typically reported (Connelly et al. 2011); however, Schroeder (1997) reported re-nesting rates greater than 80 percent in Washington. Sage-grouse are relatively long-lived tetraonids, thus renesting may not be beneficial after weighing the benefits and costs of the increased parental investment in a second clutch (Bergerud 1988).

Sage-grouse chicks are precocial and move immediately following hatching to search for food (Patterson 1952); females generally rear their broods for the first 2 to 3 weeks in the immediate vicinity of their nest (Berry and Eng 1985; Connelly 1982). Most chick mortality occurs prior to the flight stage (2 to 3 weeks) when decreased mobility increases vulnerability to predation and starvation (Autrienth 1981; Patterson 1952). Sage-grouse broods remain in sagebrush habitats until range desiccation induces them to move to habitats still supporting succulent vegetation (Fischer et al. 1993; Neel 1980; Peterson 1970; Wallestad 1971). Brooding females may remain in upland habitats if suitable microsite conditions (e.g., swales, ditches, and springs) are found (Fischer et al. 1996; Hausleitner 2003; Wallestad 1971) or if weather conditions result in forbs remaining succulent in these habitats throughout the summer (Holloran 1999).

The beginning of late brood-rearing coincides with forb desiccation but also with changes in chick diets from predominantly insects to forbs (Drut et al. 1994; Klebenow and Gray 1968; Patterson 1952; Peterson 1970). Late brood-rearing habitats generally are used from July to early September (Connelly et al. 1988; Dalke et al. 1963; Gill and Glover 1965; Patterson 1952; Savage 1969; Wallestad 1971). Fall is a transitional period for sage-grouse (Wambolt et al. 2002), during which sage-grouse diets change from a variety of forbs, insects, and sagebrush to predominantly sagebrush (Gill 1965; Leach and Hensley 1954; Patterson 1952; Rassmussen and Griner 1938; Wallestad et al. 1975).

Sage-grouse populations can exhibit either sedentary or migratory behavior. Sedentary populations increase flock size and move from meadows into nearby sagebrush habitats during winter (Autrienth 1981). Migratory populations often travel 50 to 99 miles to winter ranges (Patterson 1952), but some only

travel short distances during fall migrations (Eng and Schladweiler 1972). A precipitation event (usually snow) or a drop in the temperature initiates migration, which begins in late August (in advance of snow accumulation) and may continue into December (Berry and Eng 1985; Connelly et al. 1988; Dalke et al. 1960). During periods of early, severe winter snowstorms sage-grouse may begin migrations to winter habitats; but at the onset of milder weather later in the fall, they may return to sites adjoining late brood-rearing habitat (Patterson 1952).

Distribution and Habitat Requirements

Sage-grouse were historically distributed throughout the Intermountain and northwestern United States and southern regions of three Canadian provinces (Schroeder et al. 2004). Pre-settlement distributions included western Nebraska and the Dakotas; all of Montana, Idaho, Wyoming, Nevada and Utah; northwestern New Mexico; northern Arizona; western Colorado; portions of eastern California, Oregon and Washington; and southern British Columbia, Alberta, and Saskatchewan. Sage-grouse currently occupy 56 percent of the historical distribution, and are no longer found in Arizona, New Mexico, Nebraska, or British Columbia (Schroeder et al. 2004).

The Western Association of Fish and Wildlife Agencies recently defined seven sage-grouse management zones that reflect ecological similarities and population linkages instead of political boundaries (Knick and Connelly 2011; Stiver et al. 2006).

- Management Zone I (Great Plains) includes sage-grouse populations in eastern Montana, northeastern Wyoming, North and South Dakota, Saskatchewan, and Alberta
- Management Zone II (Wyoming Basin) consists of populations mostly in Wyoming and northwestern Colorado but also including south-central Montana, and far southeastern Idaho and northeastern Utah
- Management Zone III (Southern Great Basin) includes populations primarily in southern Nevada and Utah but includes parts of California
- Management Zone IV (Snake River Plains) includes sage-grouse populations primarily in Idaho, northern Nevada, and eastern Oregon but also includes northwestern Utah and southwestern Montana
- Management Zone V (Northern Great Basin) includes populations in Oregon, California, and Nevada
- Management Zone VI (Columbia Basin) includes populations in Washington
- Management Zone VII (Colorado Plateau) includes populations in Utah and Colorado

The highest densities of sage-grouse occur in Management Zones I, II, IV and V (Connelly et al. 2004).

Sage-grouse population persistence has been linked to the availability of sagebrush habitat; the dependence of the species on sagebrush through all seasonal periods has been well documented (Connelly et al. 2004). Sage-grouse are considered a landscape-scale species as populations generally inhabit and rely on large, interconnected expanses of sagebrush (Connelly et al. 2004). Connelly et al. (2011) report that sage-grouse populations typically occupy habitats with a diversity of species and subspecies of sagebrush interspersed with a variety of other habitats (e.g., riparian meadows, agricultural lands, grasslands, sagebrush habitats with some conifer or deciduous trees); these habitats usually are intermixed in a sagebrush-dominated landscape and are used often by sage-grouse during certain times of the year (e.g., summer) or during certain years (e.g., above-normal snow pack).

Populations generally exhibit one of three potential migratory patterns (Connelly et al. 2000): (1) nonmigratory, where sage-grouse do not make long-distance movements between or among distinct seasonal ranges; (2) one-stage migratory, where sage-grouse move between two distinct seasonal ranges (e.g., distinct winter areas and integrated breeding and summer areas); or (3) two-stage migratory, where sage-grouse move among three distinct seasonal ranges (e.g., distinct winter, breeding and summer areas). Although migratory populations may use a large area, there are specific seasonal habitats used by the population that may be spatially isolated; corridors of sagebrush-dominated habitats are used by individuals to move among these seasonal ranges (Connelly et al. 2003). For nonmigratory populations, Connelly et al. (2003) suggest that seasonal habitats generally are well interspersed with no major anthropogenic barriers (e.g., reservoirs) between habitats.

Leks are situated in areas with minimal shrub cover adjacent to relatively dense sagebrush stands where strutting male exposure is maximized but escape, thermal, and feeding cover is readily available (Gill 1965; Patterson 1952). An important characteristic for leks may be their proximity and configuration with nesting habitat (per theories of lek evolution and mating behavior) (Gibson 1996). In nonmigratory populations, leks generally are found in nesting habitat, and may be situated near the center of seasonal ranges (Eng and Schladweiler 1972; Wallestad and Pyrah 1974; Wallestad and Schladweiller 1974). In migratory populations, female dispersal routes between wintering and nesting areas may influence the locations of leks (Bradbury et al. 1989; Dalke et al. 1963; Gibson 1996; Wakkinen et al. 1992).

Selection of specific habitat features in a landscape by nesting sage-grouse has been extensively documented. Across the range of the species, nesting sage-grouse consistently select areas with more sagebrush canopy cover and taller grasses compared to available habitats and tall, dense herbaceous cover—including residual (e.g., standing dead) herbage—in selected dense sagebrush stands generally tends to increase the probability of a successful hatch (Hagen et al. 2007; Holloran 2005). Recent research suggests sage-grouse select nesting habitat at multiple spatial scales: selection is for sagebrush-canopy cover at the site scale; for high-density sagebrush and flat topography at the patch scale; and against conifer, grassland, and riparian cover at larger scales (Doherty 2008).

Females show strong fidelity to nesting areas, generally selecting nest locations within 0.3 to 0.6 miles from previous years' nests (Fischer et al. 1993; Holloran et al. 2005). Additionally, fidelity of female offspring to their natal home ranges has been observed (e.g., yearling females nesting close to their natal nest), suggesting that family groups of females may inhabit relatively distinct areas (Thompson 2012). Thermal and predator protection of young chicks (e.g., dense sagebrush stands) (Thompson et al. 2006) and food availability (e.g., insects and succulent forbs) (Drut et al. 1994; Johnson and Boyce 1990) are important for chick survival during the early brood-rearing period (hatch through 2-weeks post-hatch). Protein-rich foods are additionally required for optimal development 10 to 45 days post-hatch (Johnson and Boyce 1990).

Stand structure and food availability are characteristics most frequently associated with habitat selection by sage-grouse during the summer (Aldridge and Brigham 2002; Autrienth 1981; Klebenow 1969). Sage-grouse may use a variety of sagebrush habitats and other habitats (e.g., riparian, wet meadows and irrigated agricultural fields adjacent to sagebrush habitats) during summer, but tend to select feeding habitat near edges of sagebrush-dominated security cover types (Dunn and Braun 1986). Hagen et al. (2007) suggested sage-grouse select areas with increased forb and grass cover during late brood-rearing periods (greater than 6 weeks post-hatch).

Selection of wintering habitats by sage-grouse is influenced by snow depth and hardness, topography (i.e., elevation, slope, and aspect), and vegetation height and density (Batterson and Morse 1948; Gill 1965; Greer 1990; Schroeder et al. 1999). During the winter, sage-grouse rely almost exclusively on sagebrush exposed above the snow for forage and shelter (Connelly et al. 2000; Crawford et al. 2004; Patterson

1952; Rassmussen and Griner 1938; Remington and Braun 1985; Robertson 1991; Schroeder et al. 1999). In certain areas and during certain winters when snow depths are sufficient to cover most sagebrush plants, suitable winter habitat (e.g., areas where plant exposure above the snow is maintained) may be the most limiting seasonal habitat (Beck 1977; Patterson 1952) with sage-grouse over a broad summering area congregating on smaller, traditional wintering grounds (Beck 1977; Berry and Eng 1985).

Primary Threats to Survival

Current sage-grouse breeding populations throughout western North America are approximately 17 to 47 percent lower than those during the late 1960s, and populations declined on average 2 percent annually from 1965 to 2003 (Connelly and Braun 1997). Connelly et al. (2004) reported that long-term population declines prior to 1994 in states historically supporting the largest sage-grouse populations (Colorado, Idaho, Montana, Oregon, Wyoming) averaged 30 percent; in states and Canadian provinces historically supporting smaller populations, breeding populations declined by an average of 37 percent. Lek sizes and average rates of change in male numbers declined between 1965 and 2007 for 6 of the 7 Management Zones, and 2 Management Zones—Columbia Basin (VI) and Colorado Plateau (VII)—are projected to decline below an effective population size of 500 individual males in the next 30 years if current population trends continue (Garton et al. 2011). For the majority of management zones (86 percent), population change was best described by declining carrying capacity through time (Connelly et al. 2011), supporting conclusions that habitat quantity and quality are continuing to decline across the sagebrush biome (Connelly et al. 2004).

Potential factors contributing to sage-grouse declines range-wide include many human-caused impacts on the species and its habitats. The changes to the sagebrush biome that have occurred since pre-settlement conditions can be grouped into three categories: habitat loss, habitat degradation, and habitat fragmentation (Braun 1998). More specifically, the total area dominated by sagebrush habitats has been reduced; the composition and structure of (i.e., the vegetation and soils) sagebrush communities has been negatively altered, including increased abundance and performance of invasive species and decreased abundance and performance of native species; and roads, power lines, fences, energy developments, urbanization, and other anthropogenic features have transformed large expanses of habitat into smaller pieces (Connelly et al. 2004; Fahrig 2003). Other factors such as hunting, predation, and drought also have been implicated (Braun 1998). The relative importance of these individual factors most likely has varied over the range of the sage-grouse as well as through time.

The primary contributors to permanent habitat loss in the sagebrush biome include agricultural conversion and urbanization, although one could convincingly argue that the ultimate result of the domination of a site by invasive annual grasses constitutes permanent habitat loss. As an example, cultivated agriculture (primarily cropland) covers more than 88,800 square miles (56.8 million acres; 11 percent) of the total land area in the estimated historic distribution of sage-grouse (Knick et al. 2011). Areas converted to croplands generally are those with deeper loamy soils able to be irrigated, while sagebrush remains in arid areas where soils and topography are limiting to crops; agriculture has replaced 75 percent of the shrub steppe in deep soils, suggesting a majority of the most productive sage-grouse habitats no longer exist (Connelly et al. 2004). Agricultural development also can indirectly influence sage-grouse by providing access to sagebrush habitats for predators such as domestic cats, red fox (Vulpes vulpes) and corvids (Connelly et al. 2004).

Habitat degradation is exemplified by the long-term consequences of overgrazing by livestock at the turn of the nineteenth century as well as the proliferation of invasive annual grasses (e.g., cheatgrass [*Bromus tectorum*]), especially in the Great Basin. Miller et al. (2011) estimate that approximately 65 percent of the Great Basin ecoregion has conditions that put it at moderate to high risk of cheatgrass invasion. Dominance of a site by cheatgrass shortens fire-return intervals, which, as most species of sagebrush are

killed by fire, ultimately results in the conversion of a sagebrush-dominated site to a cheatgrass monoculture providing little to no habitat value for sage-grouse (Epanchin-Niell et al. 2009; Knapp 1996; Rowland et al. 2010). The major influence of livestock grazing on sage-grouse habitat is the potential to cause a transition from an ecological state dominated by sagebrush and cool season bunchgrasses to a site dominated by sagebrush and rhizomatous grasses, invasive annual grasslands or woodlands—all providing sage-grouse with either lower-quality or no habitat value (Pyke 2011).

Unmanaged overuse of sage-grouse habitats by wild horses and ungulates (e.g., elk, deer, and pronghorn) can have negative effects similar to livestock grazing. The transition to a lower-quality condition can occur in 10 to 15 years at any given site under heavy uncontrolled grazing; and once a site has transitioned to a grazing-tolerant state, it will not revert without active restoration, even if the mechanism causing the conversion is eliminated (Connelly et al. 2004).

Habitat fragmentation is generally the result of the addition of anthropogenic infrastructure and human activity in sagebrush habitats (e.g., roads, transmission lines, energy developments, fences). Within an 7-square-mile area, the mean sagebrush patch size was more than nine times as large in occupied sage-grouse range as compared to areas where sage-grouse had been extirpated (Wisdom et al. 2011). Paved roads exist in most sagebrush regions in densities up to or greater than 3 miles per square mile; less than 5 percent of the sage-grouse range is greater than 1.6 miles from a paved road, and almost no area of sagebrush is greater than 4.3 miles from a paved road (Knick et al. 2011). Disturbance to sage-grouse from energy development has been linked to human activity levels (Dzialak et al. 2012). Noise associated with human activity may result in habitat avoidance and thus functional habitat loss and fragmentation. Of 14 studies investigating the response of sage-grouse populations to energy development, none indicated a positive influence (Naugle et al. 2011). The indirect effects of energy development on sage-grouse populations have been documented at distances up to 6.8 miles (Johnson et al. 2011).

Occurrence in the Project Area

All of the alternative routes cross sage-grouse habitats in Management Zones II and III, with the potential to cross habitats in Management Zone VII also existing. In Wyoming, the alternative routes cross two core areas (WGFD 2010b) and the entire length of each alternative route traverses occupied sage-grouse habitat. Active sage-grouse leks are throughout sage-grouse habitats in Wyoming and all of the alternative routes cross within 4 miles of known active leks (WGFD 2012). In Colorado, approximately 30 to 50 percent of each alternative route crossed preliminary priority sage-grouse habitats (CPW 2012a), and the majority of the alternative routes traverse preliminary general sage-grouse habitat. Active sage-grouse leks are primarily located in preliminary priority sage-grouse habitats in Colorado and all of the alternative routes cross within 4 miles of known active leks in Moffat County (CPW 2012b). In Utah, populations of sage-grouse are more isolated with many distinct areas supporting sage-grouse occurring throughout the Project area. All alternative routes in Utah cross occupied sage-grouse habitat to some extent, with the northern alternative routes crossing between 5 and 10 distinct population areas and the southern-most routes crossing between 3 and 4 distinct population areas (UDWR 2011c). Active sage-grouse leks are distributed throughout sage-grouse habitats in Utah and all of the northern alternative routes cross within 4 miles of known active leks (UDWR 2013a). The southern-most alternative routes in Utah would not cross within 4 miles of active sage-grouse leks (UDWR 2013a).

Humpback Chub (*Gila cypha*) – FWS: Endangered; State: Colorado, Utah

Regulatory Status

The humpback chub was listed as endangered under the ESPA on March 11, 1967 (32 FR 4001). With the 1973 passage of the ESA, which superseded the ESPA, the species retained its endangered status. On April 18, 2007, the FWS initiated a 5-year species status review (72 FR 19549), which was completed in

2011 (FWS 2011b). The humpback chub also is included in the Lower Colorado River Multi-Species Conservation Program (2004).

The current recovery plan for the humpback chub was published in 1990 and amended in 2002. The species may be downlisted from endangered to threatened, if during a 5-year period: (1) the numbers of adults in the six extant populations do not decline significantly; (2) the recruitment of age-3 naturally produced fish equals or exceeds mean annual adult mortality for each of the sex extant populations; (3) two genetically and demographically viable, self-sustaining populations of more than 2,100 adults are maintained; and (4) site-specific management tasks to minimize or remove threats have been identified, developed and implemented. Delisting can occur if the four goals listed above are maintained for an additional 3 years past downlisting and a necessary level of protection is attained (FWS 2002d).

Taxonomy and Life History

The humpback chub was first described by Miller in 1946. Prior to that time, the humpback chub was considered part of the *Gila robusta* (roundtail chub) complex.

The humpback chub is a medium-sized unusually shaped fish of the minnow family (*Cyprinidae*). The head is narrow, flattened and generally dorsally concave with a long fleshy snout and small eyes. The mouth is inferior-subterminal. There is a pronounced dorsal hump that begins at the dorsal origin of the gill covers, protrudes anteriorly, and then ends at the origin of the dorsal fin. It is believed that the odd shape of the fish aids in fast water by pushing the fish to the bottom where the current would be slower and would expend less energy to hold position. The grooves in the hump also may aid in directing water to the fish's gills (FWS 2002d).

The humpback chub evolved in seasonally warm and turbid waters and is highly adapted to unpredictable hydrologic conditions that occurred in the Colorado River System prior to extensive damming. Spawning of the humpback chub occurs in spring shortly after peak flow (Gorman and Stone 1999). In the Little Colorado River of Arizona, individuals moved upriver in early spring and slowly back downstream post-reproductively. Humpback chubs are opportunistic omnivores that are known to eat insects, crustaceans, plants, seeds, and occasionally small fish, reptiles, and amphibians depending on availability (FWS 2002d).

Distribution and Habitat Requirements

Historically, the humpback chub was found throughout the Colorado River basin from western Colorado and Wyoming to northern Arizona in the Colorado, Green, lower Yampa, and White rivers. Currently, there are six known self-sustaining populations consisting of 7,300 to 13,800 wild adults. Five occur in the Upper and one on the Lower Basin Recovery Units. The Upper Recovery Unit consists of populations on the Colorado River (Black Rocks and Westwater Canyon in Utah and Cataract Canyon of Colorado), one population on the Yampa River (Yampa Canyon in Colorado), and on the Green River (Desolation/Gray Canyons of Utah). The only population in the Lower Basin Recovery Unit occurs on the mainstem Colorado River in Marble and Grand Canyons and the Little Colorado River. A small number of humpback chub have been captured in the Green River in Dinosaur National Monument, but are not considered to be a self-sustaining population (FWS 2002d).

Humpback chubs are found in large rivers in a variety of habitats. Adults have been found in deep turbulent currents, shaded canyon pools, areas under shaded ledges in moderate current, riffles, and eddies (FWS 1994b). Young and spawning adults are generally found in sandy runs and backwaters (FWS 1990b). in the Colorado, Green, Lower Yampa, and White rivers.

Primary Threats to Survival

The current primary threats to the humpback chub are loss fragmentation, and modification of habitat due to construction and operation of the Hoover Dam. The dam has led to impoundment of streams causing stream inundation, reduced water temperatures, reduced spring flow, and increased daily fluctuation in flow. Decreased temperatures and flow reduction may impede successful spawning and increase competition with other species. As with the other Colorado River Basin endangered fishes, predation by introduced species is also likely to have been an important factor in the decline of the species. Species such as bass, sunfish, catfish, red shiner, and the redside shiner prey on the eggs and young of a number of native fish species (45 FR 27710).

Other threats include hybridization with G. elegans (bonytail) and G. robusta (roundtail chub), introduced parasites, and effects of a small population size. In addition to possible genetic effects and higher vulnerability to catastrophic events, small population size in fish can contribute to low reproductive success during spawning. Increased hybridization among the native Gila species is thought to be symptomatic of changes in habitat and movement patterns leading to the genetic introgression (UNHP 2003). The introduced Asian tapeworm also may be a serious threat to the survival of the humpback chub.

Occurrence in the Project Area

The humpback chub is endemic to the Colorado River basin and is primarily found in Utah. In the Project area, there are four known populations of humpback chub: Black Rocks, Westwater, Yampa, and Desolation/Gray Canyons. Some individuals have also been seen in the Green River through Dinosaur National Monument. Designated critical habitat for the species, in the Project area, includes portions of the Colorado, Green, and Yampa rivers. Water depletions in the upper Colorado River system in Wyoming, Colorado, and Utah could affect humpback chub or its habitat.

June Sucker (*Chasmitstes liorus*) – FWS: Endangered; State: Utah

Regulatory Status

The June sucker was proposed for listing as endangered under the ESA in 1984, with critical habitat proposed in the Lower Provo and Spanish Fork rivers (49 FR 27183-27188). The listing was finalized in 1986, although the Spanish Fork River was removed from the final critical habitat designation (51 FR 10851-10857).

Taxonomy and Life History

The June sucker is one of four or five species in the genus *Chasmistes*, although one is presumed extinct (FishBase 2014). Two of the five species are endemic to Utah Lake and its tributaries, and form a species complex where anatomical similarity and apparent hybridization events have made identification difficult since each species was described. The Webug sucker (*C. fecundus*) has been variously separated from or combined with other species in descriptions on the basis of anatomical features that often overlap, and the current status of the species is unclear although it may persist in Utah Lake (Cook 2001). The closely related Utah sucker (*Catostomus ardens*) and June sucker may have hybridized during a drought event in the 1930s that reduced water levels in Utah Lake and affected spawning behavior. This event may have resulted in the loss of a pure June sucker population, although the resulting population, sometimes named *Chasmistes liorus mictus*, appears to be reproductively isolated and distinct from the Utah sucker at this time.

June suckers spawn in gravel beds in low-velocity rivers and streams that flow into Utah Lake. Spawning peaks in early June, after flows peak from snowmelt runoff (Modde and Muirhead 1994), although spawning may be shifting to earlier dates in response to changed flow patterns in managed rivers

(Andersen et al. 2006). After hatching in riverine gravel beds, larval June suckers may remain in low-flow areas, then drift downstream and enter Utah Lake. There, juveniles would take refuge and mature in extensive areas of emergent aquatic vegetation that formerly surrounded the lake. June suckers mature between 5 and 10 years of age, and individuals as old as 42 have been captured (Belk 1998).

Distribution and Habitat Requirements

The June sucker is restricted to Utah Lake and the Provo River, although it may occasionally spawn in other historically occupied tributaries of Utah Lake as well, including the Spanish Fork and Hobble Creek (FWS 1999a, Abate 2015). Several populations are maintained in fish hatcheries, and several populations exist in natural and man-made lakes and reservoirs, where the species was introduced to provide insurance against events that could affect the native population in Utah Lake (Andersen et al. 2006). The agency-preferred route crosses into the Utah lake watershed and the Spanish Fork River subbasin of the Jordan River basin.

Adult June suckers require open-water lake habitat, and feed primarily on zooplankton. June suckers have been observed feeding in large schools in open water, presumably following concentrations of zooplankton as well as potentially lowering individual predation risk (Billman 2008). Juveniles prefer the structure and shelter of emergent aquatic vegetation in shallow water, such as existed previously in marshes where spawning streams join Utah Lake.

Primary Threats to Survival

Many of the threats to the June sucker interact and are related to the physical and biological characteristics of Utah Lake. Manipulation of water levels in Utah Lake, together with the introduction of non-native herbivorous fish such as common carp (*Cyprinus carpio*) resulted in the loss of much of the emergent vegetation around the lake. Increased nutrient loading from land use practices such as agriculture adjacent to the lake and its tributaries supports extensive algal blooms. These blooms, together with higher turbidity resulting from the loss of emergent vegetation that previously buffered wave action and sediment-disturbing foraging activities of common carp, has allowed turbidity to increase and further reduced the ability of emergent vegetation to recover. The loss of shelter and foraging habitat for juvenile June suckers allowed high rates of predation from introduced game fish, and functionally prevented recruitment in the species prior to implementation of the hatchery program.

Alteration of flows in rivers used for spawning may have, as noted previously, shifted the spawning season earlier in the year. A change in spawning season can expose larval and juvenile June suckers to river and lake conditions to which they may not be adapted. Physical manipulation (e.g., damming, channelization) of many of the former spawning streams has eliminated natural spawning runs, with only the Provo River now supporting natural reproduction for the species.

Occurrence in the Project Area

The June sucker is found in Utah Lake in the Jordan River basin and historically spawned in several rivers that flow into the lake, including the Spanish Fork and Provo River. However, natural spawning is currently restricted to a small portion of the Provo River, lower Spanish Fork, and occasionally other tributaries of Utah Lake (Andersen et al. 2006, Abate 2015). The lower 3 miles of the Provo River is designated critical habitat (51 FR 10851-10857). The species may spawn in the lower reaches of Spanish Fork below a diversion structure that prevents upstream movement (Abate 2015). No designated critical habitat is present in or downstream from the Project area.

Least Tern (Interior Population; *Sternula antillarum*) – FWS: Endangered; State: Colorado

Regulatory Status

The least tern was proposed for listing under the ESA in 1984 (49 FR 2485-2488), and was listed as endangered on May 28, 1985 (50 FR 21784-21792). A 5-year review of the status of the least tern was initiated in March of 2008 (73 FR 21643), and the completed 5-year review was released in 2013 (FWS 2013b).

Taxonomy and Life History

Subspecies of the least tern in North America were recognized as a result of studies on vocalization and behavior differences in the Old and New Worlds (AOU 1998). The interior least tern (*Sterna antillarum athalassos*), the eastern or coastal least tern (*Sterna antillarum antillarum*), and the California least tern (*Sterna antillarum browni*) were originally distinguished. Given reports of no consistent morphological, behavioral, or vocal difference between the California and the coastal least terns, and lack of morphometric or biochemical distinctions of the different subspecies, the FWS did not list the subspecies but instead designated those least terns occurring in interior North America as endangered (FWS 1990c).

The least tern is the smallest of the North American terns. In breeding seasons the adult plumage includes a black cap and loral stripe contrasting with a white forehead. The least tern is often most distinguishable from other terns in basic and subadult plumages by small size. Nest selection by the least tern is generally dependent on open areas free of vegetation, above high water levels and safe from ground predators. Islands often are preferred where they occur. Sandy areas with sparse vegetation, mudflats, graveled rooftops and parking lots, and dredged-material deposits also are used for nesting sites. Breeding time periods vary geographically. Early April on the Gulf Coast, later April in California, early May on the north Atlantic coast, and late April to late May are all feasible breeding times in the interior population. Typically clutches are two or three, sometimes one; three-egg clutches are more prevalent at interior breeding areas than coastal areas, with an incubation period generally between 19 and 25 days (Thompson et al. 1997).

The least tern primarily feeds on fish and aquatic invertebrates that occur in the upper portion of the water column. The species appears to select for fish, especially if non-deep-bodied fish are available. The least tern forages throughout the day searching for prey while flying or hovering above the water, quickly plunging to the surface, but not fully submerging when grasping aquatic prey. Occasionally, the species captures flying insects over land and water, or skims the water's surface to capture swimming insects (Wilson et al. 1993).

Distribution and Habitat Requirements

The least tern is a widely distributed breeder in North America. The species typically nests in open sandy beaches, sandbars, unvegetated islands, and a variety of material deposits along the coasts of oceans, bays, inland rivers, large lakes and reservoirs as well as Great Plains wetlands. In the coastal United States, the least tern breeds locally from southern Maine south to southern Florida, and along both shores of the Chesapeake Bay north to Baltimore and Queen Anne's, Maryland; as well as along the extreme southern Delaware Bay. The least tern also breeds locally along the Gulf Coast from southern Florida west to southern Texas and along the Pacific Coast from the San Francisco Bay south to the Mexican border.

Within the inland United States, the least tern breeds locally from Missouri, Ohio and Mississippi rivers west throughout the Great Plains to eastern Montana, eastern Colorado, and eastern New Mexico. The species also breeds in Colorado's Adobe Creek and Nee Noshe Reservoirs, Kiowa County, and Horse Creek Reservoir, Otero County. In S. Dakota: along Cheyenne River in Meade County, and in Nebraska: Platte River throughout from Lincoln County eastward, on Lake McConaughy of North Platte River,

Loup River from Nance County to confluence with Platte, Elkhorn River throughout, and Niobrara River in Keyapaha. The least tern is also found in localized areas in the states: Nebraska, Kansas, Oklahoma, Texas, Arkansas, New Mexico, Louisiana, South Carolina, and Florida.

In Middle America, the least tern breeds in Mexico at coastal sites along Baja, the Pacific Coast from Sonora south to at least Oaxaca, along the Atlantic Coast in northern Tamaulipas, and along the northern and eastern coast of the Yucatan Peninsula. They also breed in Belize and western Honduras (Thompson et al. 1997).

The least tern usually forms colonies on bare or sparsely vegetated sand or dried mudflats along coasts or rivers, and sandy islands as well as gravel and sand pits (Smith and Renken 1991). Colonies are typically near lagoons, estuaries, rivers, or coasts. Often nests are found on deposited dredged materials (Burger and Gochfeld 1990).

Least tern colony habitats can be ephemeral, which makes continued use difficult, but the species shows high colony site tenacity and fidelity that are both influenced by changes in vegetative cover, predators, human activity, flood, and colony size (Atwood and Massey 1988). The presence and number of suitable nest sites as well as human activity limit colony sites.

Primary Threats to Survival

Human activity causing least tern habitat alteration and destruction via channelization, irrigation, and the construction of reservoirs and pools have contributed to the elimination of much of this tern's sandbar and nesting habitat in the Missouri, Arkansas, and Red River systems (FWS 1990c). Most sandbars of the Missouri River have disappeared between Sioux City, Iowa, and Saint Louis. Habitat with sandbars often experience dam discharges, causing problems for the least terns nesting in remaining habitats. Before human regulation of river flows, summer flow patterns were more predictable with peak flows occurring in March and again in May and June with mountain snowmelt, allowing for flow decline during the rest of the summer and exposing sandbars during least tern nesting periods. Present hydropower, irrigation, and public recreation demands on river flow can conflict with historic flood regimes, often decreasing the quality and quantity of least tern nesting sites (FWS 1990c).

Occurrence in the Project Area

No least tern occurrences have been noted in or near the Project area based on Heritage data provided. According to FWS, the least tern does not occur west of Routt National Forest; however, the endangered interior populations may be affected by potential Platte River water use by the Project in Wyoming.

Mexican Spotted Owl (*Strix occidentalis lucida*) – FWS: Threatened; State: Colorado, Utah

Regulatory Status

The Mexican spotted owl was federally listed as a threatened species on March 16, 1993 (58 FR 14248). Critical habitat was originally designated on March 16, 1993 (58 FR 14248), and subsequently revoked on March 25, 1998 (63 FR 14378). Critical habitat was re-established on February 1, 2001 (66 FR 8530) and a comment period on critical habitat was re-opened on November 18, 2003 (68 FR 65020). The current defined critical habitat was established on August 31, 2004 (69 FR 53181). This apparent vacillation in designation of critical habitat is the result of conflict between environmental and economic interests in late seral stage coniferous forests inhabited by the bulk of northern spotted owls (*Strix occidentalis caurina*) in the Pacific Northwest. This conflict has resulted in several management plans and several FWS status reviews for the species (Gutierrez et al. 1995).

A revised recovery plan for the Mexican spotted owl was published in 2012. The recovery objective of the plan is to delist the species, which can occur when the population in the three most populated Recovery Units are stable or increasing, habitat monitoring protocols are designed and implemented, and a long-term management plan is in place to ensure appropriate management (FWS 2012d).

Taxonomy and Life History

The Mexican spotted owl is one of three recognized subspecies of the spotted owl in North America. *S. o. lucida* is the only subspecies that occurs in the Project study area. The other subspecies (*S. o. occidentalis* and *S. o. caurina*), the California spotted owl and the northern spotted owl, respectively, are found along the west coast from south-central California north to southwestern British Columbia (Gutierrez et al. 1995).

Spotted owls are usually found in steep canyons with mature or old-growth forest, but they also may be found in canyons with steep cliffs and relatively little forest habitat. They usually occur in habitats that support a multi-leveled canopy with a perennial water source nearby. They have been reported at elevations ranging from 3,700 feet to the subalpine transition (Ganey 1998; Gutierrez et al. 1995; Johnsgard 1988).

Spotted owls are nocturnal ambush hunters that feed mainly on small mammals, primarily rodent species, with wood rats (*Neotoma* spp.) often the dominant dietary component. Invertebrates make up a small portion of their prey, and they may supplement their diet with birds, bats, or lagomorphs (Ehrlich et al. 1988; Ganey 1998; Gutierrez et al. 1995). In Arizona, Mexican spotted owls feed on wood rats, white-footed mice (*Peromyscus leucopus*), voles (*Microtus* spp.), rabbits, and pocket gophers (*Thomomys* spp.) (Ganey 1998).

Spotted owls may construct nests in tree cavities (usually in live trees) or on constructed platforms on tree limbs. In Utah they nest almost exclusively in caves (Gorell et al. 2005). They may use abandoned raptor or corvid platform nests (Ehrlich et al. 1988; Terres 1980). They produce from 2 to 4 eggs, with the typical number being two (Ehrlich et al. 1988; Gutierrez et al. 1995; Terres 1980).

Distribution and Habitat Requirements

The Mexican spotted owl is a permanent resident in the interior mountain ranges of western North America, from southern Utah and central Colorado south through the mountains of Arizona, New Mexico, and extreme west Texas. Its range in Mexico includes mountainous regions from Sonora, Chihuahua, Coahuila, and Nuevo Leon south to Jalisco, Michoacan, and Guanajuato (AOU 1998).

The Mexican spotted owl normally occupies old-growth forest in mixed conifer, pine-oak woodland, deciduous riparian, or a combination of these habitats that will support a home range of 1,400 to 4,500 acres (Ehrlich et al. 1988; Gutierrez et al. 1995). An unaltered core area of approximately 600 acres centered on the nest site is the currently recommended disturbance buffer (Gutierrez et al. 1995). Habitat typically also has a structured canopy, a perennial water source, and a rodent dominated prey base of adequate size (Gutierrez et al. 1995).

Primary Threats to Survival

The primary threat to Mexican spotted owls in the U.S. is the risk of stand-replacing wildfire (FWS 2012d). Fire can create patches of preferred foraging habitat for Mexican spotted owls, but stand replacing fires can remove nesting habitat over large areas (Bond et al. 2002; Jenness 2000). However, fire is not a landscape-scale threat to Mexican spotted owl habitat on the Colorado Plateau, as the cliff and canyon habitat experiences a very low incidence and extent of stand-replacing fire (FWS 2012d).

At the time of listing, habitat loss and fragmentation related to old-growth timber harvest and other forest management practices (Ehrlich et al. 1988; Gutierrez et al. 1995) were considered the primary threat to Mexican spotted owl survival, but current forest-management practices are more compatible with maintenance of spotted owl habitat conditions (FWS 2012d). Secondary human-caused habitat impacts include losses associated with developments for urban or suburban expansion, and development for agriculture, reservoirs, mining, and fuel-wood harvesting (Gutierrez et al. 1995).

Occurrence in the Project Area

There are several areas where the spotted owl could occur in the Project area in Utah: the northeast corner of Uintah County south of and including the Green River and its tributary canyons and the Desolation Canyon area of the Green River on the boundary between Carbon and Uintah counties (Gorell et al. 2005; Utah Department of Natural Resources 2008). The Mexican spotted owl is not believed to occur in Colorado or Wyoming. The Project does not cross designated critical habitat for the species.

Pallid Sturgeon (*Scaphirhynchus albus*) – FWS: Endangered

Regulatory Status

The pallid sturgeon was originally submitted as a category 2 candidate species on December 30, 1982 (47 FR 58454-58460). The species was listed as endangered on September 6, 1990 (55 FR 36641-36647). On November 7, 1993, a recovery plan for the pallid sturgeon was published. The objective of this plan is to delist the species by 2040. Delisting may be considered when a population structure with at least 10 percent sexually mature females in each recovery-priority management area and there are sufficient population numbers in the wild to maintain stability. Specific numbers quantifying sufficient population numbers has yet to be determined (Dryer and Sandvol 1993; FWS 2007c). No critical habitat has been designated for the pallid sturgeon.

Taxonomy and Life History

The pallid sturgeon is a member of an ancient group of bony fishes (subclass *Paleopterygii*) that thrived from the Paleozoic Era through to the early Mesozoic Era. Most species in this subclass went extinct, but eight species of sturgeon (family *Acipenseridae*) and the paddlefish (family *Polyodnotidae*) continue to inhabit portions of North America (Dryer and Sandvol 1993).

The pallid sturgeon was described in 1905 from nine specimens collected out of the Mississippi River near Grafton, Illinois. It was originally classified as its own genus (*Paracaphirhynchus*), but was ultimately determined to be part of the genus *Scaphirhynchus* in 1954 (Dryer and Sandvol 1993).

The pallid sturgeon is long and slender with a completely armored caudal peduncle. It has a flattened, shovel-shaped snout with a toothless mouth located on the ventral side of the snout. The species is the largest fish species found in the Missouri/Mississippi River drainage with some individuals near 86 pounds. Individuals found in the northern portions of the species' ranges tend to be significantly larger than those in the southern portions of the range (Dryer and Sandvol 1993).

Spawning occurs between June and August. It is unclear at what size and age sexual maturity is reached, but for most sturgeon species, sexual maturity is not reached until 7 years of age and several years for eggs to mature between spawnings is required. One study estimates that male pallid sturgeons reach sexual maturity at 7 to 9 years with 2- to 3- year intervals between spawning years. Females were estimated to reach sexual maturity at 15 to 20 years with 3- to 10-year intervals between spawning years (Dryer and Sandvol 1993).

Pallid sturgeons primarily consume fish, but will also consume aquatic invertebrates (Dryer and Sandvol 1993).

Distribution and Habitat Requirements

Pallid sturgeons inhabit the Missouri and Mississippi River systems from Montana to southern Louisiana in addition to tributaries of those rivers. The pallid sturgeon evolved with the rivers and relied on the annual floods that would occur as a result of snowmelt. These flood events would occur in April and June stimulating spawning migrations (Dryer and Sandvol 1993).

Specific habitat preference data is extremely limited due to the rarity of the species. Utilizing capture occurrences may or may not provide a true representation of the micro-habitat characteristics of the pallid sturgeon. Pallid sturgeons often are captured over a sand bottom which is the predominant bottom substrate within the species' range. The species has been captured over gravel and rock in the Yellowstone River. The species is most often captured in areas with a velocity of 1.3 to 2.9 feet per second or in slower currents near to shore (Dryer and Sandvol 1993).

Primary Threats to Survival

The primary threat to the survival of the pallid sturgeon is habitat loss. Destruction and alteration of the river system by humans through dams and channelization has greatly altered the water flow and ecosystems of these rivers. Channelization results in changes in water velocity, reduces the width of the river, and prevents water flow into backwaters. Dams have resulted in the control of annual flooding as well as fragmenting habitat. Impoundments have also reduced the sediment. Pallid sturgeons evolved to live in a nearly sightless world. Water clarity has increased predation by sight-feeding predators as well as making capture of prey by pallid sturgeons more difficult (Dryer and Sandvol 1993).

Occurrence in the Project Area

There are no occurrences of pallid sturgeon with or near the Project area. However, the species does inhabit the lower Platter River. The lower Platte River is considered to be the Platte River from the confluence with the Missouri River upstream to the Loup River (FWS 2007c). This area is entirely located in eastern Nebraska, but may be affected due to drawdown should the Project use water from the Platte River in Wyoming.

Piping Plover (*Charadrius melodus circumcinctus*) – FWS: Threatened; State: Colorado

Regulatory Status

All regulatory designations for piping plover have been at the species level. On December 30, 1982, the FWS designated the piping plover as a category 2 candidate for listing (47 FR 58458). On December 11, 1984, the Great Lakes breeding population was designated as endangered and all other piping plovers were designated as threatened (50 FR 50726-50734). The Great Lakes breeding population includes the states of Illinois, Indiana, Mississippi, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin, and the province of Ontario.

Critical habitat for the Great Lakes breeding population was designated on May 7, 2001 (66 FR 22938-22969). Critical habitat for wintering piping plovers was designated on July 10, 2001 (66 FR 36038-36143). Critical was designated for the Northern Great Plains breeding population on September 11, 2002 (67 FR 57638-57717).

Recovery plans have been developed for each of three separate breeding populations: Atlantic Coast, Great Lakes, and Northern Great Plains. These plans call for recovery criteria specific to each population

(FWS 2009b). Recovery criteria for the Northern Great Plains populations include: (1) increase the number of birds to 1,300 pairs; (2) protect essential breeding and winter habitat; (3) attain the Canadian Recovery objective of 2,500 birds for the prairie region; and (4) the 1,300 pairs will be maintained in the following distribution for 15 years (FWS 1988a):

- Montana: 60 pairs
- North Dakota: 650 pairs (Missouri River, 100 pairs; Missouri Coteau, 550 pairs)
- South Dakota: 350 pairs (Missouri River below Gavins Point, 250 pairs [shared with Nebraska]; other Missouri River sites, 75 pairs; other sites, 25 pairs)
- Nebraska: 465 pairs (Platte River, 140 pairs; Niobrara River, 50 pairs; Missouri River, 250 pairs; Loup River system, 25 pairs)
- Minnesota: 25 pairs (Lake of the Woods)

Taxonomy and Life History

Two subspecies of piping plover (*Charadrius melodus circumcinctus and C.m. melodus*) have been recognized since 1957. The subspecies *melodus* is considered the Atlantic coast subspecies and *circumcinctus* is the inland subspecies. There has been debate over the recognition of these subspecies; however, recent genetic analysis has come to suggest that subspecific differentiation is valid and that Great Lakes birds align more closely with the inland birds than the Atlantic birds (Elliott-Smith and Haig 2005; FWS 2009b). Even though the Great Lakes and Northern Great Plains populations are a single subspecies, behavioral and ecological factors provide enough separation to continue managing these two populations separately (FWS 2009b).

Piping plovers are small shorebirds with a brown dorsal side and white underbelly. They have a ring around their neck that may be complete or incomplete. Plovers have stubby bills with an orange base and black tip (Elliott-Smith and Haig 2005).

Piping plovers tend to lay four eggs per clutch and have one brood per year. Females may lay multiple clutches if nests are destroyed, but will only raise a single brood. Nests are dug in sandy substrate. In the northern reaches of the breeding range, the species will begin laying eggs during the first 2 weeks of May and incubate for 25-28 days. Chicks fledge between 21 and 35 days of age (Elliott-Smith and Haig 2005).

Piping plovers forage along freshwater and marine shorelines. They feed on freshwater, marine, terrestrial, and benthic invertebrates (Elliott-Smith and Haig 2005).

Distribution and Habitat Requirements

As previously mentioned, there are three breeding populations. The Atlantic Coast population inhabits the Atlantic Coast between Newfoundland and North Carolina. The northern Great Plains breeding populations ranges from northern Saskatchewan and south to portions of Kansas and Oklahoma and from Montana east to Minnesota. The Great Lakes population was found throughout much of north-central United States and south-central Canada, but is currently limited to northern Michigan and northern Wisconsin. Piping plovers winter along the Atlantic and Gulf Coasts from North Carolina to Mexico and portions of the West Indies and Bahamas (66 FR 22939).

Breeding habitat consists of open sandy beaches. These beaches may be found on shorelines of oceans or Great Lakes, but also may be found along alkali lakes, reservoirs, rivers, freshwater lakes, dry alkali lakes, sandpits, industrial ponds, and gravel mines. The species tends to prefer wide, sparsely vegetated sand or gravel beaches adjacent to vast waters. Along rivers, piping plovers will use beaches, sand flats, dredge islands, and drained floodplains where vegetative cover is less than 20 percent. Winter habitat is

similar to breeding habitat, but is almost entirely located along oceanic coasts and bays (Elliott-Smith and Haig 2005).

Primary Threats to Survival

The primary threat to piping plovers is loss of habitat. Shoreline development along the Gulf and Atlantic Coasts and along the Great Lakes has greatly reduced the amount of available habitat. Additional efforts to stabilize beaches in the wake of large storms have altered the natural tidal flows in many areas. In the northern Great Plains population area, development of reservoirs, channelization of rivers, and modification of river flows have greatly altered the vegetation growth in areas that were previously scoured of vegetation by spring flooding events (FWS 2009b)

In addition to these threats, other human-related impacts are threatening the survival of piping plovers. Recreation along coasts and shorelines disturb roosting and/or nesting plovers. Pets often destroy nests. Wind and oil development throughout much of the species' range may further affect survival (FWS 2009b)

Occurrence in the Project Area

There are no piping plovers or habitat in the Project area. However, the species is known to inhabit the Platte River throughout Nebraska. There may be potential for impact on the species through project-related water use resulting in drawdown of water downstream in the Platte River.

Razorback Sucker (*Xyrauchen texanus*) – FWS: Endangered; State: Colorado, Utah

Regulatory Status

The razorback sucker was first proposed for listing as a threatened species under the ESA of 1973 on April 24, 1978 (43 FR 17375). On May 27, 1980, the FWS withdrew the proposal, because it was not finalized within the 2-year time limit from the initial publication in the *Federal Register* (45 FR 35410). In 1989, the FWS received a petition from the Sierra Club, National Audubon Society, The Wilderness Society, Colorado Environmental Coalition, Southern Utah Wilderness Alliance, and the Northwest Rivers Alliance requesting that the razorback sucker be listed as an endangered species. A positive finding was made and subsequently published by the FWS on October 23, 1991 (56 FR 54957). On March 21, 1994 the FWS designated 15 reaches of the Colorado River system, including portions of the Green, Yampa, Duchesne, Colorado, White, Gunnison, and San Juan rivers in the Upper Basin and portions of the Colorado, Gila, Salt, and Verde rivers in the Lower Basin, totaling 1,724 miles of critical habitat for the species (59 FR 13374). On February 14, 2007, the FWS and Nevada Department of Wildlife entered into a Safe Harbor Agreement, encouraging the conservation, enhancement of survival, and recovery of the species through development of facilities for the rearing of juveniles and providing refuge habitats for adult razorback suckers (71 FR 57558). A 5-year review was initiated on April 18, 2007 (72 FR 19549).

The current recovery plan for the razorback sucker was published in 1998 and amended in 2002. To address unique threats and site-specific management actions, the entire population of the razorback sucker has been reduced to upper and lower basin recovery units. The upper basin recovery subunit is composed of the Green River, upper Colorado River, and San Juan River subbasins and the lower basin recovery subunit includes the mainstem and tributaries of the Colorado River from Lake Mead downstream to the southerly International Boundary with Mexico. The species may be downlisted from endangered to threatened, if during a 5-year period: (1) two subbasins (one Green River subbasin and one in either the Colorado River or San Juan River subbasins) and two subunits (lower basin recovery subunit) demonstrate that genetically and demographically viable, self-sustaining populations of more than 5,800

adults are maintained; (2) a genetic refuge is maintained in a suitable location in the lower basin recovery unit such as Lake Mohave; and (3) site-specific management tasks to minimize or remove threats have been identified, developed and implemented. Delisting can occur if the three goals listed above are maintained for an additional 3 years past downlisting and a necessary level of protection is attained (FWS 2002b).

Taxonomy and Life History

The razorback sucker, also known as the humpback sucker, is a member of the family *Catostomidae*. The razorback sucker was first described by Charles Conrad Abbott as *Catostomus texanus* because it was mistakenly thought that the species had come from the Colorado River in Texas. In 1889 it was reorganized into the *Xyrauchen* genus, which translates to razornape. LaRivers redescribed the species, correctly identifying the place of origin to the Colorado and New rivers in Arizona (FWS 2002b).

Adult razorback suckers can grow up to 3 feet long and weigh up to 13 pounds. However, most specimens are smaller. The largest razorback suckers currently inhabit the warmer climates of the lower Colorado River. It is easily distinguished from other catostomids by a pronounced bony keel that grows from the dorsal surface of its back and gill rakers, an adaptation for feeding on zooplankton. Razorback suckers consume insects, zooplankton, phytoplankton, algae, and detritus, depending on age and habitat. Larvae begin feeding on plankton, as the mouth migrates to a sub-terminal position, larvae begin feeding on benthos as well (FWS 2002b).

Razorback suckers spawn as early as 3 to 4 years of age. Depending on water temperature, spawning may begin in mid-April and last as late as June. In Lake Mohave, spawning has been observed as early as November, but no earlier than February in Lake Mead. They migrate long distances, congregating in large numbers at spawning sites. Razorback suckers are broadcast spawners that deposit adhesive eggs over a cobble substrate that are quickly covered by silt. Adults do not guard nests (FWS 2002b).

Distribution and Habitat Requirements

Historically, the razorback sucker was widely distributed and abundant in the Colorado River and major tributaries from Northern Mexico through Arizona and Utah into Wyoming, Colorado, and New Mexico. Now it is much reduced in range and abundance. In the Lower Colorado Basin numbers of razorback sucker began to decline with the impoundment of Lake Mead.

In the Upper Colorado River Basin, razorback suckers are considered extant in 4 locations: Westwater and Cataract Canyons and the Utah-Colorado border on the Colorado River, Desolation/Gray Canyons of the Green River, and a population in northeastern Colorado on the Yampa River. The razorback sucker is more widely distributed in the Lower Basin. The total population is estimated at approximately 10,500 individuals in three areas. The Lake Mohave population is the largest, estimated at 9,000 individuals. There is no observed recruitment in the population though, so as the population ages it becomes smaller. In Lake Mead, the population is estimated at about 400 individuals with an average age of 20 to 25 years of age, indicating recent recruitment. Approximately 1,000 individuals are believed to inhabit a 60-mile reach between Davis Dam and Lake Havasu and have demonstrated reproduction (FWS 2002b).

Razorback sucker habitat includes slow areas, backwaters, and medium to large eddies of medium to large rivers and their impoundments. Three of the four remaining populations of more than 100 individuals are found in reservoirs. Flooded lowlands and lower portions of tributary streams serve as resting and feeding areas during breeding season in the Green River basin. The razorback sucker is commonly associated with sandy, muddy, and rocky substrates in areas with little aquatic vegetation. In Lake Mohave, individuals were associated with inshore habitats except during the hotter months when they moved offshore possibly to avoid warmer water temperatures (FWS 2002b).

In streams, spawning occurs most commonly near shores in streams over silty sand, gravel, or rock substrate. In reservoirs, spawning occurs on gravel bars swept clean by wave action or along shorelines over mixed substrates. Larvae appear to remain in gravel until swim-up in the shallow littoral zone for a few weeks after hatching, and then disperse to deeper waters. Seasonally inundated floodplains provide favorable feeding areas for young (FWS 2002b).

Primary Threats to Survival

Primary threats to the razorback sucker are nonnative fishes and invertebrates and human alteration of riparian habitat. Predation on larvae and juveniles by introduced fishes results in low and sometimes absent recruitment despite confirmed spawning and hatched larvae. Competition with and predation by exotic crayfish may have also been documented in some areas. Hybridization with other suckers is a potential problem in some locations. The loss, fragmentation, and modification of habitat due to construction and operation of dams greatly restrict the amount of suitable habitat. Dams lead to impoundment of streams causing changes in winter and spring flows, altered river temperatures, and reduced flooding (FWS 2002b).

Occurrence in the Project Area

The razorback sucker is endemic to the Colorado River Basin, found primarily in Utah. In the Project area, the razorback sucker is found in Westwater and Cataract Canyons on the Colorado River in Grand, San Juan, and Wayne counties, Desolation/Gray Canyons on the Green River in Carbon, Emery, and Grand counties, and in the Yampa River in Moffat County, Colorado. Portions of the designated critical habitat are also in the Project area in the Green, Yampa, Duchesne, Colorado, White, and Gunnison rivers. Water depletions in the upper Colorado River system in Wyoming, Colorado, and Utah could affect razorback sucker or its habitat.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*) – FWS: Endangered; State: Colorado, Utah

Regulatory Status

The southwestern willow flycatcher was listed as endangered on February 27, 1995, primarily because of loss and modification of riparian habitats (60 FR 10695-10715). Critical habitat was later designated on July 22, 1997 (62 FR 39129). A court decision in 2001 resulted in a subsequent final rule on critical habitat on October 19, 2005 (70 FR 60885). It includes a portion of the Virgin River in Washington County, Utah, and Clark County, Nevada. A 5-year review of the species was completed by the FWS in 2005 (73 FR 14995).

A recovery plan for the southwestern willow flycatcher was published in 2002. Reclassification status includes increasing the total population to 1,950 geographically distributed territories, which must be maintained for 5 years before delisting can occur (FWS 2002e).

Taxonomy and Life History

The southwestern willow flycatcher was originally described by John James Audubon in 1828 as Traill's Flycatcher (*Muscicapa traillii*), from specimens obtained in wooded areas along the Arkansas River (Sedgwick 2000). Phillips (1948) described *E. t. extimus*, the southwestern willow flycatcher, from specimens collected on the San Pedro River in southeastern Arizona. Depending on the author, there are four or five recognized subspecies of the willow flycatcher; *E. t. traillii*, *E. t. adastus*, *E. t. brewsteri*, *E. t. extimus*, and *E. t. campestris (the outlier)* (Sedgwick 2000).

Southwestern willow flycatchers normally select nest sites in thickets of shrubs and trees between 4 and 23 feet (4 and 7 meters) in height, with dense foliage between ground level and 13 feet (4 meters) (60 FR 10695-10715; Ehrlich et al. 1988). The nest is an open, compact cup of plant bark, fiber, and grass and lined with a thin layer of fine grass and cottony and silky plant materials. There are frequently feathers in the rim, and the nest may have plant material dangling from the bottom (Harrison 1979). Nest trees often are rooted in or near water. Plant species diversity in nest territories varies. The southwestern willow flycatcher will nest in native riparian species where available, but it will also nest in monocultures of salt cedar (*Tamarix* sp.) or Russian olive (*Elaeagnus angustifolia*) (USGS 2008). Nest sites are commonly reported in Geyer willow (*Salix geyeriana*), Goodding willow (*S. gooddingii*), box elder (*Acer negundo*), and live oak (*Quercus agrifolia*) (Sogge et al. 1997). Southwestern willow flycatchers usually spend only 3 to 4 months on their breeding grounds, spending the rest of the year in migration or at wintering grounds (FWS 2002e). Females lay a clutch of 3 to 4 eggs (FWS 2002e). Nestlings fledge after 12 to 15 days (Ehrlich et al. 1988; FWS 2002e).

Like most other flycatchers, the willow flycatcher forages primarily by flying from a perch to capture flying insects (Ehrlich et al. 1988). It also will use gleaning techniques when foraging for spiders, millipedes, and other flightless arthropods, and also when feeding on berries (Sedgwick 2000; Terres 1980). Food preferences of the willow flycatcher are reported by Bent (1942), in documentation associated with the Alder flycatcher. These were considered a single species at the time the data were collected, and the sample set included both species. In the sampled diets, animal material made up 96 percent, and vegetative material was only 4 percent of the food. The vegetative part of the diet included elderberries (*Sambucus* spp.), blackberries or raspberries (*Rubus* spp.), dogwood berries (*Cornus* spp.), juniper berries (*Juniperus* spp.), and unidentified fruits and seeds.

Distribution and Habitat Requirements

All subspecies of the willow flycatcher winter in Central America, from southwestern Mexico (Nayarit and Oaxaca) south to Panama and possibly northwestern Columbia (AOU 1998), but migration routes are relatively unknown (FWS 2002e) and are believed to pass through primarily the southern and southwestern parts of the United States, with the northern subspecies passing through the breeding areas of the southwestern willow flycatcher (AOU 1998; Sogge et al. 1997). The normal spring migration period is from early May through early June, and the fall migration may extend from late July through September (Phillips et al. 1964). Historic breeding records exist for southern California, southern Nevada, southern Utah, Arizona, New Mexico, western Texas, southwestern Colorado, and northwestern Mexico (FWS 2002e). In the western United States, southwestern willow flycatchers often are found on willow-covered islands, brush along watercourses, beaver meadows, and mountain parks, always in close association with riparian waters and lentic waters (FWS 2002e). They may be found as high as 7,875 feet, and they also follow willow- or cottonwood-lined streams out into desert regions (Terres 1980). Southwestern willow flycatcher territories and nest sites are usually located near open water, cienegas, marshy seeps, or saturated soils (Sogge et al. 1997). In the semiarid and arid parts of the southwest, hydrologic conditions can vary radically both within a season and between years. Many sites have surface water or saturated soil only during the early part of the breeding season. Breeding habitat on the edge of a reservoir may have standing water during a wet year, or it may be further from surface water during dry conditions (Sogge et al. 1997).

Four specific habitat types have been described as breeding areas for the southwestern willow flycatcher (Sogge et al. 1997). The first of these types is monotypic high-elevation willow. This habitat is composed of dense stands of willows 10 to 23 feet (3 to 7 meters) in height with no distinct overstory. This community often is associated with sedges, rushes, or other herbaceous wetland plants. A second habitat type is monotypic exotic, with dense stands of salt cedar or Russian olive up to 33 feet (10 meters) in height. These species form a dense, closed canopy, with no distinct overstory layer (Sogge et al. 1997).

Native broadleaf-dominated communities form a third habitat type. This habitat may be composed of a single species, such as Goodding willow, but often contains other broadleaf tree and shrub species, including cottonwood (*Populus* spp.), other willows, boxelder ash (*Fraxinus* spp.), alder (*Alnus* spp.), and buttonbush (*Cephalanthus occidentalis*). The vegetation in this habitat type ranges in height from 10 to 49 feet (3 to 15 meters). There are trees of various size classes, and there is often a distinct overstory. The final habitat type is a mixture of native and exotic species, including those listed above. In any particular area, the native and exotic species may be dispersed as patches dominated by natives or exotics, or they may be more evenly distributed throughout the area (Sogge et al. 1997).

Regardless of the species composition, all of these habitats share common structural characteristics. Occupied habitats always have dense vegetation in the patch interior, and dense patches often are interspersed with small clearings, open water, or areas of sparse shrubs. Habitat patches can vary in size and shape, with some occupied areas being relatively dense, linear, contiguous stands, and others being large, irregularly shaped mosaics of dense vegetation intermingled with open areas. Patch sizes can range from as little as 2 acres to several hundred to a thousand acres (XX hectares to several hundred hectares). Southwestern willow flycatchers have not been found nesting in narrow riparian habitats less than 33 feet (10 meters) wide (Sogge et al. 1997).

Migration and wintering habitat may differ from breeding habitat. During migration, riparian habitat along major southwestern drainages is commonly used, but a close association with water may not always exist. These areas might be considered stopover areas and may be very important resources for the southwestern willow flycatcher (FWS 2002e).

Primary Threats to Survival

Two primary factors have been identified as serious threats to the continued existence of the southwestern willow flycatcher (60 FR 10695-10715). These threats are the loss and degradation of riparian habitat and brood parasitism by brown-headed cowbirds (*Molothrus ater*). The primary causes for riparian alteration and degradation include urban and agricultural development, water diversion and impoundment, channelization, livestock grazing, off-road vehicles and other recreational use, and hydrological changes resulting from these uses (Jones and Cahlan 1975) (60 FR 10695-10715).

The FWS believes that the invasion of salt cedar is a factor in the loss and modification of habitat for the southwestern willow flycatcher (60 FR 10695-10715). Many other human activities, including livestock grazing, water diversion, channelization, and vegetation removal, in the riparian area tend to favor the spread of salt cedar. The spread of salt cedar coincides with the decline of the southwestern willow flycatcher, although the flycatchers have been documented to breed in dense salt cedar stands (60 FR 10695-10715).

Brown-headed cowbirds also are a threat to southwestern willow flycatchers because of their reproductive strategy of brood parasitism. The spread of cowbirds into the range of the southwestern willow flycatcher began in the late 1800s, with the increase in the human-population density and their associated livestock (60 FR 10695-10715). The willow flycatcher is a common host to cowbirds (Ehrlich et al. 1992; Sogge et al. 1997). The flycatchers appear to be nearly incapable of rearing their own young if a cowbird chick is in the nest, and parasitism almost always leads to a complete failure of the nest (Sogge et al. 1997).

Occurrence in the Project Area

Portions of the Project area in Utah are within the breeding range of the southwestern willow flycatcher (Sedgwick 2000). However, the Project area does not include any designated critical habitat for the species. Southwestern willow flycatchers may be present in riparian habitats in Grand and Emery counties, Utah.

Whooping Crane (*Grus americana*) – FWS: Endangered; State: Colorado

Regulatory Status

The whooping crane was listed as endangered on March 11, 1967, under the ESPA, and carried forward under the ESA on its passage in 1973 (32 FR 4001). Whooping crane populations consist of one wild population and several reintroduced NEPs. NEPs were designated in several regions: the Rocky Mountains population, the Florida nonmigratory population, the eastern United States migratory population, and the southwestern Louisiana nonmigratory population (66 FR 33903-33917, 62 FR 38932-38939, 58 FR 5647-5658). The reintroduced Rocky Mountains NEP migrated through the Project area, although the reintroduction was not successful and no whooping cranes remained after 2002 (Canadian Wildlife Service and FWS 2007). The Aransas-Wood Buffalo population, listed as endangered, is the only self-sustaining wild population, and uses the Platte River as an important migration stopover point. Critical habitat was designated in the United States in 1978 for key wintering and migration areas (43 FR 20938-20942).

The first recovery plan for the whooping crane was prepared in 1980, revised in 1986, 1994, and most recently in 2007 (Canadian Wildlife Service and FWS 2007). The recovery plan does not identify delisting goals but anticipates the whooping crane can be downlisted to threatened when a single self-sustaining population of at least 1,000 individuals is reached, or when multiple smaller self-sustaining populations have been maintained in the wild for at least 10 years. Additionally, a captive breeding population must maintain the current genetic diversity of the species.

Taxonomy and Life History

The whooping crane is a member of the family *Gruidae*, its closest relatives in continental North America being five races of sandhill cranes (*Grus canadensis*). The whooping crane is North America's tallest bird, with males approaching 5 feet (1.5 meters) in height. The sexes appear the same, although their guard call vocalizations are sexually distinct. The plumage is snowy white, with black primaries, a carmine crown and malar region, and a dark wedge-shaped patch on the nape. Juvenile birds have reddish-cinnamon plumage until the end of their second summer.

Eggs are normally laid from late April to mid-May, and hatch a month later. Whooping cranes generally nest annually, unless nesting habitat conditions are unsuitable or the birds are nutritionally stressed. The diet varies seasonally and by habitat, but includes insects, frogs, rodents, fish, plant tubers, berries, crabs, crayfish, clams, and agricultural grains (Canadian Wildlife Service and FWS 2007).

Distribution and Habitat Requirements

Historically, whooping cranes ranged from the Arctic coast south the central Mexico, and from Utah east to New Jersey, South Carolina, Georgia, and Florida (Canadian Wildlife Service and FWS 2007). Currently, only three wild populations exist, with another nine in captivity at various facilities. As of February 2006, the total wild population consisted of 338 individuals, and the total captive population of 135 individuals (Canadian Wildlife Service and FWS 2007).

The Aransas-Wood Buffalo population nests in and around Wood Buffalo National Park in Alberta and the Northwest Territories, and winters in and adjacent to Aransas National Wildlife Refuge on the Texas coast. Departure from the wintering grounds generally begins between March 25 and April 15, with the autumn migration commencing around mid-September. Most birds will have arrived on the wintering grounds between late October and mid-November (Canadian Wildlife Service and FWS 2007).

Reintroduction attempts in the Rocky Mountains took place from 1975 to 1989 and again in 1997. One male from that population remains in captivity; the last remaining wild bird died in 2002 (Canadian

Wildlife Service and FWS 2007). A non-migratory flock was introduced in the Kissimmee Prairie and surrounding area in central Florida in 1993. Efforts have been ongoing since 2001 to establish a migratory flock between Wisconsin and the central Florida Gulf Coast.

Breeding habitat in Wood Buffalo National Park (Canada) consists of numerous shallow, poorly drained wetlands of varying sizes and shapes, separated by narrow, slightly elevated ridges with an overstory of white and black spruce (*Picea glauca*, and *P. mariana*), tamarack (*Larix laricina*), and willows (*Salix* spp.), with a shrub understory. Habitat on the wintering grounds includes tidal flats, estuarine marshes, and other shallow coastal wetland communities (Lewis 1995).

Primary Threats to Survival

A variety of factors threaten the survival of the whooping crane. As with many other endangered species, destruction of habitat, loss of migration stopover habitat, and displacement due to human activities are threats. Additionally, loss of individuals by human shooting remains a threat. In November 2009, a reproductive female whooping crane from the eastern United States migratory population was shot and killed in Indiana (FWS 2009c), and shooting deaths due to vandalism or misidentification continue (Canadian Wildlife Service and FWS 2007). An estimated 60 to 80 percent of crane losses occur during migration, with the primary cause of loss being collisions with utility lines. Additional threats are posed by disease, inclement weather, predation, and the species' delayed reproductive maturity, low reproductive rates, and drastically reduced gene pool (Canadian Wildlife Service and FWS 2007; Lewis 1995).

Occurrence in the Project Area

The Aransas-Wood Buffalo population of whooping cranes migrates across the Great Plains twice a year, between the Texas Gulf Coast and northern Alberta/southern Northwest territories in Canada. The vast majority of whooping crane sightings for this migration route fall within a narrow corridor crossing Texas, Oklahoma, Kansas, Nebraska, South Dakota, North Dakota, Saskatchewan, Alberta, and the Northwest territories (FWS 2009d; Stehn 2007). The introduced Rocky Mountain population included wintering grounds in eastern Idaho and western Wyoming, however no individuals of that population remain in the wild (Canadian Wildlife Service and FWS 2007); therefore, no whooping cranes would be expected to occur in the Project study area. Whooping crane and designated critical habitat along the Platte River could be affected by water use in the Platte River system.

Yellow-billed Cuckoo (*Coccyzus americanus*) – FWS: Threatened; BLM: Wyoming, Colorado, Utah; USFS: Ashley, Manti-La Sal, Uinta National Forests; State: Wyoming, Colorado, Utah

Regulatory Status

The western yellow-billed cuckoo was petitioned for ESA listing as a subspecies in 1998 (Center for Biological Diversity 1998). In 2001, the FWS determined that listing the yellow-billed cuckoo in the western United States as a DPS was warranted but was precluded by higher listing priorities (66 FR 38611-38626). FWS proposed listing the western United States DPS of the yellow-billed cuckoo as threatened under the ESA in 2013 (78 FR 61621-61666), and published a final rule listing the DPS in 2014 (79 FR 59992-60038). Following the proposed listing of the DPS, the FWS proposed critical habitat for the yellow-billed cuckoo in 2014 (79 FR 48547-48652). Critical habitat was proposed in nine states, including Wyoming, Colorado, and Utah. East of the Continental Divide (outside the listed DPS), the BLM recognizes the yellow-billed cuckoo as a BLM-sensitive species.

Taxonomy and Life History

The yellow-billed cuckoo is one of six species of the family *Cuculidae* that breed in the United States (National Geographic Society 2002). The yellow-billed cuckoo was first described by Linnaeus in 1758 as *Cuculus americanus*, with the western yellow-billed cuckoo being described in 1887 as *Coccyzus americanus occidentalis* by Ridgeway. However, since the late 1800s, debate has centered on whether the species should be split into eastern (*C. a. americanus*) and western (*C. a. occidentalis*) subspecies (66 FR 38611-38626). Those in favor or recognizing subspecies cited differences in morphology between eastern and western birds. Review and study of yellow-billed cuckoo taxonomy occurred in response to a petition in 1986 to list the yellow-billed cuckoo as endangered in California, Washington, Oregon, Idaho, and Nevada. In their response to a second petition the FWS determined that there was not enough evidence to consider the western population as a distinct subspecies, but the population did warrant listing as a DPS. The range of the western yellow-billed cuckoo was determined to be the area west of the west of the Rocky Mountains (66 FR 38611-38626).

Western populations of yellow-billed cuckoos breed in dense riparian woodlands, primarily of cottonwood (*Populus fremontii*), willow (*Salix* spp.), and mesquite (*Prosopis* spp.), along riparian corridors in otherwise arid areas (Hughes 1999). Dense undergrowth may be an important factor in selection of nest sites (Ehrlich et al. 1988). Western yellow-billed cuckoos appear to require relatively large tracts of riparian woodland. Several studies have reported western yellow-billed cuckoos nesting in tracts greater than 25 acres in size. These cuckoos may be restricted to areas close to water because of humidity requirements for hatching eggs and rearing chicks (Laymon 1998).

Most western yellow-billed cuckoos arrive on their breeding grounds in June (Laymon 1998). They construct an unkempt stick nest on a horizontal limb, often in shrubby vegetation (Ehrlich et al. 1988; Terres 1980). Nest heights range from 4.3 feet to (rarely) 98 feet and average below 20 feet (Laymon 1998).

Yellow-billed cuckoos lay one to five large eggs, which hatch after 9 to 11 days of incubation (Ehrlich et al. 1988). Nestlings fledge at 5 to 8 days of age, giving the species the shortest combined incubation and nestling period known for any bird (Corman and Wise-Gervais 2005; Hughes 1999). They are occasionally brood parasites of other species (Hughes 1999). This behavior may be stimulated by high egg production resulting from abundant food supplies (Ehrlich et al. 1988).

Yellow-billed cuckoos forage primarily by gleaning insects from vegetation, but they also may capture flying insects (Ehrlich et al. 1988; Hughes 1999; Laymon 1998). They specialize on relatively large prey, including caterpillars, katydids, cicadas, grasshoppers, and tree frogs (Laymon 1998; Terres 1980). Their

breeding season may be timed to coincide with outbreaks of insect species, particularly tent caterpillars (Hughes 1999; Ehrlich et al. 1988; 66 FR 38611-38626). They also consume some wild berries; take small lizards and frogs, and occasionally bird eggs and young as prey (Hughes 1999; Terres 1980).

Distribution and Habitat Requirements

The western yellow-billed cuckoo was formerly widespread and locally common in California and Arizona; locally common in New Mexico, Oregon, and Washington; and local and uncommon along drainages in western Colorado, western Wyoming, Idaho, Nevada, and Utah (66 FR 38611-38626). Populations of yellow-billed cuckoos in the western United States have declined over the past century and their breeding range has contracted. The species may be extirpated from British Columbia, Washington, and Oregon (Hughes 1999).

The yellow-billed cuckoo breeds from interior California, southern Idaho, the Dakotas, and southern New Brunswick south to Baja California, southern Arizona, Chihuahua, the Gulf Coast and the Greater Antilles. The breeding range formerly extended north to western Washington (AOU 1998). Although an uncommon summer resident in Wyoming, it has not been confirmed as breeding in the area (Cerovski et al. 2004). Breeding records are very rare and the species only occurs in scattered drainages in western Colorado, Idaho, Nevada, and Utah (NatureServe 2008c). Breeding records in Utah are rare in lowland riparian habitats. Records exist in the northern Salt Lake Valley (Weber and Salt Lake counties), Utah Lake near the mouth of the Provo River (Utah County), Cedar City, and Beaver Dam Wash (Washington County). Extensive riparian habitat occurs at the confluence of the Duchesne, White, and Green rivers on the Uintah and Ouray Reservation (Grand and Uintah counties) (Bosworth 2003; Parrish et al. 2002), and sustains the largest breeding population of yellow-billed cuckoo in Utah (BLM 2008d).

The western yellow-billed cuckoo prefers large stands of dense riparian woodlands for nesting that are primarily composed of cottonwood (Populus fremontii), willow (Salix spp.), and mesquite (Prosopis spp.) along riparian corridors in otherwise arid areas (Hughes 1999). Several studies have reported western yellow-billed cuckoos preferring to nest in tracts greater than 25 acres in size. Dense undergrowth may be an important factor in selection of nest sites (Ehrlich et al. 1988), as multi-storied canopy and dense shrubby vegetation provide invertebrate prey and cover for foraging juveniles (Corman and Wise-Gervais 2005). Water is required near the nesting site (Corman and Wise-Gervais 2005; Floyd et al. 2007), which along with dense vegetation, maintain the humidity required in the nesting area for hatching eggs and rearing chicks (Corman and Wise-Gervais 2005, Laymon 1998).

Primary Threats to Survival

The primary threat to western yellow-billed cuckoos is the loss of high-quality riparian habitat suitable for nesting (Corman and Wise-Gervais 2005; Floyd et al. 2007). Riparian habitat throughout the western United States has been modified or destroyed by dams, water diversions, riverflow management, stream channelization and stabilization, conversion to agricultural uses (e.g., livestock grazing), construction of urban and transportation infrastructure, and an increased incidence of wildfire. Habitat fragmentation and invasion of native habitats by non-native plant species (especially tamarisk) result from the aforementioned habitat-modifying factors (78 FR 61622-61665).

Other natural and manmade factors threatening the continued existence of yellow-billed cuckoo include habitat rarity, small overall population size, isolation of populations, lack of immigration, chance weather events, fluctuating availability of prey populations, pesticides, collisions with tall vertical structures during migration, spread of the introduced tamarisk leaf beetle as a biocontrol agent in the Southwest that results in defoliation of nonnative habitats used for nesting, and climate change (78 FR 61622-61665).

Occurrence in the Project Area

The western yellow-billed cuckoo may occur in riparian habitats associated with major river systems in the Project area. The species has been observed in the vicinity of Flaming Gorge (Sweetwater County, Wyoming) (Cerovski et al. 2004). One known occurrence is within the 1-mile buffer of Link U420 along Lake Fork River near Upalco, Utah. The species is also known to breed along the Green River in Uintah County, Utah. Proposed critical habitat is crossed by Alternative WYCO-D in Colorado and Alternatives COUT-A and COUT-B in Utah.

J.6.2.2 Bureau of Land Management, U.S. Forest Service, and State-Sensitive Fish and Wildlife Species

American Bittern (*Botaurus lentiginosus*) – State: Wyoming

The American bittern's breeding range encompasses the northern half of the United States north through Canada to the Northwest Territories. Wintering birds are found along the southern edges of the United States south to Panama. The species is a heron-like bird that inhabits wetlands dominated by tall, emergent vegetation. American bitterns forage on insects, amphibians, crayfish, and small fish and mammals (Lowther et al. 2009). The eastern half of the Project area is within the known breeding range for the American bittern. There is a single known occurrence in the Project area located at the western end of Stevies Lake along the Big Ditch west of Hanna, Wyoming (Link W21). The American bittern is likely to occur in the Project area in suitable wetland and marsh habitats.

American Marten (*Martes americana*) – State: Wyoming

The American marten range includes most of North America from Alaska through forested areas in Canada, northeastern United States, and south along western United States mountain ranges. The species is considered uncommon in Wyoming. Old-growth conifer and mixed stands, including spruce-fir, lodgepole pine, and deciduous forests are typical marten habitats. Mesic stands with closed canopies, living branches lower on trees, abundant woody debris, dense understory, and lengthy fire regimes are habitat characteristics where the American marten often dens in tree cavities, rotten logs, or underground. The marten also forages for small mammals, birds, insects, and fruits in riparian, meadow, forest edge, and rocky alpine areas (WGFD 2010a). The American marten has intrasexual overlapping territories. Home range size varies by geographic location and prey densities. Daily activity patterns are diurnal in winter and crepuscular in summer. Predator-prey dynamics are closely linked, with predator abundance and age structure of marten populations fluctuating with relative prey abundance. A further limiting factor is predation by mammalian and avian predators, with a 50 percent survival rate in the first year (Powell et al. 2003). A portion of the Project area lies within the range of the American marten in northeastern Utah and southwestern Wyoming and the species is likely to breed and forage in the Project area.

American Pika (*Ochotona princeps*) – State: Wyoming

The American pika primarily occurs in higher elevation mountainous regions in the western United States. The species is considered common in Wyoming and can be found year-round throughout the state. Talus slopes or rock outcrops associated with grasses, alpine, and sub-alpine plants providing a food source are typical American pika habitat characteristics. A portion of the Project area lies within the range of the American pika in northeastern Utah and southwestern Wyoming (WGFD 2010a). The species is likely to breed and forage in suitable habitat in the Project area.

American White Pelican (*Pelecanus erythrorhyncos*) – BLM: Colorado, Utah; State: Utah

The American white pelican is a migratory species that breeds in very localized areas of Wyoming, Colorado, Utah, and Nevada and migrates to the coasts of California and Mexico for the winter (Anderson

1991). The species arrives at breeding grounds in March, where it prefers islands with flat or low gradient slopes associated with fresh water lakes. Preferred foraging areas are shallow lakes, marshlands, and rivers and are typically more than 30 miles from nesting areas. Pelicans are monogamous and pair up after arrival at breeding grounds (Knopf 1979).The species is highly social, nesting in colonies, and often incorporates cooperative feeding strategies (Anderson 1991).

Gunnison Island in the northern arm of the Great Salt Lake is the only known nesting site for the species in Utah and represents one of the four largest breeding colonies in North America (Bosworth 2003). During spring and fall migration, pelicans occur on lakes and reservoirs throughout Utah, Wyoming, and Colorado. The species is regularly observed at the Ouray National Wildlife Refuge in Uintah County, Utah, though breeding has not been observed at this site (USGS 2012). Threats to the species are greatest at nesting colony locations (Bosworth 2003). Migrating or foraging American white pelicans are likely to occur in the Project area.

Aquatic Snails (combined account) – State: Wyoming

Aquatic snails and limpets are soft-bodied mollusks with a spiral, coiled disk-shaped (snails) or cone-shaped (limpets) shell. Approximately 526 species of aquatic snails and limpets are known throughout North America. These species feed on algae, microbes, fungi, and detritus from solid surfaces in aquatic systems (WGFD 2010a). These species can be found in most aquatic systems in the Project area.

Ash-throated Flycatcher (*Myiarchus cinerascens*) State: Wyoming

The ash-throated flycatcher's breeding distribution spans southwestern Oregon, eastern Washington, to southern Idaho, southwestern Wyoming, Colorado, New Mexico, and northern and central Texas. The species occasionally breeds in Oklahoma, Baja California, and the mainland of Mexico. Outside of the breeding season, the ash-throated flycatcher can be found in northern Baja California; southeastern California; central Arizona; and south into the mainland of Mexico, El Salvador, and Costa Rica. Desert scrub, pinyon-juniper and oak woodland, chaparral, thorn scrub, and riparian woodland are all suitable habitats of the ash-throated flycatcher. In the Project area, the species most commonly uses pinyon-juniper habitats. Nests typically are found in tree cavities, holes in cacti, and in abandoned woodpecker holes and cactus wren nests (Cardiff and Dittmann 2001). The ash-throated flycatcher is known to occur in the Project area along Red Creek at Richards Gap (Links W492, W493, W520) and along the Little Snake River near the Wyoming-Colorado border (WYNDD 2011). The ash-throated flycatcher is likely to breed and forage in suitable habitats throughout the Project area.

Baird's Sparrow (*Ammodramus bairdii*) – BLM: Wyoming

Baird's sparrow was once considered one of the most common prairie birds in some areas; it is now rare throughout its range and only abundant in local areas with suitable grassland habitat. During breeding season, Baird's sparrow prefers idle or lightly grazed native grasslands. Native prairie appears to be preferred habitat, although there is some use of crested wheatgrass (*Agropyron cristatum*) (Casey 2000). In dry years or drier parts of the range, breeding occurs in grassy sloughs, alkali flats, and depressions in low lying grasslands. Baird's sparrows leave their breeding grounds in August and spend the winter in extreme southeastern Arizona, southern New Mexico, and Mexico (Luce and Keinath 2003). Non-breeding habitat consists of overgrown fields and open grasslands with very few woody plants greater than 1 meter in height (Gordon 2000). In the United States, breeding occurs in central and eastern Montana, and North and South Dakota. In Wyoming, there is circumstantial evidence of breeding in Laramie, Platte, Albany, Converse, and Campbell counties and observations of the species in central and eastern portions of the state during migration (Cerovski et al. 2004). All suspected breeding locations occur outside of the Project area. Transient individuals may fly through the Project area during seasonal migration, but it is a secretive and difficult species to see during migration (Luce and Keinath 2003).

Bald Eagle (*Haliaeetus leucocephalus*) – BLM: Wyoming, Colorado, Utah; USFS: Ashley, Manti-La Sal, and Uinta National Forests; State: Wyoming, Colorado, Utah

Once an endangered species, the FWS now considers the bald eagle fully recovered; the species was delisted on August 8, 2007 (72 FR 37345). It continues to receive federal protection through the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act, as well as being protected as a BLM, USFS, and State sensitive species. Breeding habitat for the bald eagle is typically mature and old-growth forests within 6.5 miles of large bodies of water with availability of food sources such as fish, waterfowl, and sea birds. However, the distance to water may not be as important as the presence of superdominant trees, areas of lower human disturbance, and abundance of fish species (Livingston et al. 1990). Nesting is in either deciduous or conifer, but generally in the largest tree available. Nests often are reused in successive years. Wintering habitat is found along large rivers and unfrozen lakes throughout the range of the species; juveniles are more likely to move large distances than adults that typically only migrate as needed to find food (Buehler 2000).

Both breeding and wintering sites are found in the Project area portions of Wyoming. In Colorado, there is both good wintering and nesting areas, though nesting is uncommon. The Colorado River near Ruby Canyon (30 miles downstream of the confluence with the Gunnison River) and Horsethief Canyon State Wildlife Area are known nesting locations and in the Project area. In Utah, the species is widespread during winter, but very few known breeding pairs exist. According to available data, one nest site occurs in Emery County south of Castledale (approximately 4 miles southwest of Link U731) and two occur in Grand County (one along the Colorado River near Nine Mile Bottom approximately 6 miles southeast of Link U490 along the Colorado River between the Colorado-Utah border and Bitter Creek approximately 5 miles southeast of Link U490) (Bosworth 2003).

Big Brown Bat (*Eptesicus fuscus*) – State: Wyoming

A medium to large bat, the big brown bat is a habitat generalist, found in timberline meadows to lowland deserts, although it is most abundant in deciduous forest and suburban and mixed agricultural use areas (Bat Conservation International 2009a). Maternity roosts are established in buildings, barns, bridges, and bat houses. The species hibernates in caves, preferring areas near the cave entrance where temperatures are low and the relative humidity is below 100 percent (Schmidly 1991). Often big brown bats are found in association with Yuma and little brown myotis and Brazilian free-tailed and pallid bats (Schmidly 1991). Big brown bats forage in tree foliage or cleared meadows with small beetles comprising the majority of the diet (Barbour and Davis 1969; Bat Conservation International 2009a; Schmidly 1991). Caves, trees, mines, buildings, bridges, rock crevices, cliff swallow nests, and tunnels are used for day roosts (Bradley et al. 2006; Schmidly 1991), with roosts containing small groups of bats to several hundred (Bradley et al. 2006). The big brown bat occurs from extreme northern Canada all the way to the extreme southern tip of Mexico (Bat Conservation International 2009a). There are no known occurrences of big brown bats in or near the Project area; however, the entire Project area lies within the range of the species.

Big Free-tailed Bat (*Nyctinomops macrotis*) – BLM: Utah; State: Utah

The big free-tailed bat is associated with canyon lands and very rocky country. It is generally associated with floodplain-arroyo habitats at low elevation in Nevada (Bradley et al. 2006) and lowland riparian, desert shrub, and montane forests of Colorado and Utah (Oliver 2000).The species primarily roosts on cliff faces, but occasionally has been found in buildings and caves (Bradley et al. 2006). The big free-tailed bat is a summer resident of Colorado and Utah. In Colorado, it is found on both sides of the Continental Divide as far north as the Colorado River in Mesa County. In Utah it has been found as far north as Utah County (Bradley et al. 2006). Portions of the Project area are within summer range of the

species and contain suitable habitat; the big free-tailed bat is likely to forage throughout the Project area in Colorado and Utah.

Bigmouth Shiner (*Notropis dorsalis*) – State: Wyoming

The bigmouth shiner inhabits riverine systems from northern Minnesota to eastern Illinois and west to central Wyoming (WGFD 2010a). The species is not found in the Project area, but inhabits the Platte River system, which may be affected from drawdown of water from the Platte River watershed as a result of project-related water usage.

Black-rosy Finch (*Leucosticte atrata*) – State: Wyoming

The black rosy finch is found throughout the Great Basin and Intermountain regions of the United States. The species seasonally migrates between lower and higher elevations, and rarely nests below 10,000 feet (WGFD 2010a). The species often is observed in winter in grasslands, agricultural areas, roadsides, and residential areas (WGFD 2010a). The black rosy finch primarily feeds on seeds and insects with seeds being the dominate food source during the winter (Johnson 2002). The entire Project area is in the known range of the black rosy finch. The Heritage data provided included one known occurrence of the species from in the Project area near Crescent Junction, Utah, approximately 7 miles west of Thompson along Link U490. The black rosy finch may forage and winter in the Project area.

Black Swift (*Cypseloides niger*) – BLM: Utah; State: Utah

The black swift is an elusive bird that feeds at high altitudes. The black swift's nest site requirements are very specialized; nests are always found behind waterfalls in dark recesses with unobstructed access (Knorr 1961). Black swifts typically nest in colonies of less than 10 pairs (Marín 1997) and lay only one egg. In Utah and Colorado, breeding occurs in localized areas. The species migrates out of the Project area for winter. Known breeding sites occur in Utah at Bridal Veil Falls, Aspen Grove, and Stewart Falls in the Uinta National Forest, all near Provo (UDWR 2005a), and in Colorado from Garfield County (NatureServe 2009). The black swift may migrate through the Project area, but nesting individuals are unlikely to occur near alternative routes. One known occurrence crosses the centerline of Link U420 along Red Creek near Fruitland, Utah.

Black Tern (*Chlidonias niger*) – State: Wyoming

The black tern is a localized breeder throughout most of the northern Great Plains and Great Basin and winters along the coasts of Central and South America. It nests in semi-colonies in shallow, freshwater wetlands on floating material or on the ground in the emergent vegetation. Nests are typically within several feet of open water (Casey 2000). The Project area is on the southern boundary of the breeding range of the species, but the black tern is known to occur in the Project area. The species is believed to breed in the vicinity of Elk Mountain, Wyoming, but breeding has not been confirmed (Cerovski et al. 2004). Breeding has not been documented elsewhere in the Project area, though suitable wetland habitat also can be found in Colorado and Utah (Ridgely et al. 2007). Black tern occurrences have been noted from Pelican Lake (Utah), Ouray (Utah), and Hogback Lake (Wyoming).

Black-crowned Night-heron (*Nycticorax nycticorax*) – State: Wyoming

The black-crowned night-heron inhabits most of the western hemisphere from Saskatchewan and Alberta south to Tierra del Fuego, Argentina. The species inhabits a wide variety of wetland habitats including fresh, brackish, and salt-water situations such as swamps, streams, rivers, pools, ponds, lakes, lagoons, tidal mudflats, salt marsh, freshwater marsh, ditches, canals, reservoirs, and wet agricultural fields. Black-crowned night-herons wade through shallow waters feeding on a wide variety of foods such as leeches,

earthworms, aquatic and terrestrial insects, prawns and crayfish, clams, mussels, squid, fish, amphibians, lizards, snakes, turtles, small mammals, birds, eggs, plant materials, and even garbage from landfills (Hothem et al. 2010). There are no known occurrences in the Project area; however, the majority of the Project area falls within the known range of the black-crowned night-heron. The black-crowned night-heron is likely to breed and forage in suitable wetland habitats in the Project area.

Bluehead Sucker (*Catostomus discobolus*) – BLM: Wyoming, Colorado, Utah; State: Wyoming, Utah

The bluehead sucker occurs in mountain streams and large rivers that are often turbid or muddy and sometimes alkaline. It is usually found in swift currents but also has been found in moderate to still water with very little vegetation (UDWR 1998). Current known distribution of the bluehead sucker includes the Little Snake (Carbon County) and Green (Sweetwater County) river drainages in Wyoming; the Little Snake and Green (Moffat County), White (Rio Blanco County), and Colorado (Mesa County) river drainages in Colorado; and the Colorado River Drainage including the Colorado (Grand County), Green (Uintah, Emery, and Grand counties), San Rafael (Emery County), Price (Carbon County), and White (Uintah County) rivers in Utah (UDWR 1998). The bluehead sucker is threatened by habitat alteration and loss, introduction of exotic fished, and hybridization with other species of sucker (UDWR 1998). Populations of the species may be declining (UDWR 1998; WGFD 2010a). Alternative routes are within the known range of the bluehead sucker in Wyoming, Colorado, and Utah. The bluehead sucker is known to occur in the Project area.

Bobolink (*Dolichonyx oryzivorus*) – BLM: Utah; State: Wyoming, Utah

The bobolink is a neotropical migrant that has one of the longest annual migrations of any North American songbird, approximately 12,500 miles. The species is found throughout the northern United States from the east to the west. The species leaves breeding grounds in August and winters in southern South America. In the west, the bobolink nests and forages primarily in wet meadows, wet grasslands, and irrigated agricultural fields associated with riparian or wetland areas. Nests are built on the ground, often located at the base of large forbs (UDWR 205a0). Habitat for the bobolink is found throughout Wyoming, Colorado, and Utah. Isolated breeding populations occur in northern Utah, primarily along the Wasatch Mountains (Bosworth 2003). In Wyoming, bobolinks have been observed throughout the state, but are considered to be an uncommon summer resident (WGFD 2010a). In Colorado, substantial populations occur in the Yampa and White river valleys, and near Boulder, Colorado (Beason et al. 2008). The bobolink may breed and forage in suitable habitats in the Project area.

Bonneville Cutthroat Trout (*Oncorhynchus clarki utah*) – BLM: Utah; USFS: Manti-La Sal and Uinta National Forests; State: Wyoming, Utah

The Bonneville cutthroat trout occurs in streams and lakes of the Bonneville Basin and Virgin River drainage. It is typically found in headwater streams at high elevations entering and exiting the Bonneville Basin, but also located in perennial streams of the Deep Creek Mountains and the Virgin River drainage in the Pine Valley Mountains. The species is threatened by loss, degradation, and fragmentation of habitat, overutilization, hybridization with nonnative trout, and disease (Bosworth 2003). Bonneville cutthroat trout was formally believed to be extinct (UDWR 1998). Conservation and stocking efforts have stabilized many extant populations, re-established extirpated populations, and expanded the range of the species (Bosworth 2003). Current known distribution of the Bonneville cutthroat trout includes streams in the Deep Creek Mountains and the Santa Clara, Sevier, and Virgin River drainages in Utah and Nevada (UDWR 1998). Suitable habitat for the species can be found on the Manti-La Sal and Uinta National Forests. Alternative routes are within the known range of the Bonneville cutthroat trout in Utah and the species is known to occur in the Project area. Known occurrences of the species in the Project area are in

Lake Fork east of Thistle, Utah, where this creek is crossed by Link U460; along Sheep Creek where it is crossed by Link U420; and in Tie Fork where it is crossed by Link U539.

Brassy Minnow (*Hybognathus hankinsoni*) – State: Wyoming, Colorado

The brassy minnow inhabits the Missouri and upper Mississippi river drainages from eastern Wyoming and Montana across the northern states to Ontario and New York and south to Kansas and Missouri (WGFD 2010a). The species is not found in the Project area, but inhabits the Platte River system that may be affected from drawdown of water from the Platte River watershed as a result of project-related water usage.

Brewer's Sparrow (*Spizella breweri*) – BLM: Wyoming, Colorado; State: Wyoming

Brewer's sparrow is a neotropical migrant; though some populations may only migrate a short distance between breeding and wintering grounds. The species breeds from southeastern Alaska and Saskatchewan south to southern California and southwestern Kansas. Brewer's sparrow migrates south to winter between southern California, western Texas, and central Mexico. Within the species breeding range, the Brewer's sparrow is considered a shrub steppe obligate, strongly associated with sagebrush in areas with scattered shrubs and short grass. It nests low in sagebrush, other shrub, or cactus. It is mainly a Great Basin species, but occurs in shrub steppe habitats in all states in the Project area, breeding throughout Utah, Wyoming, and western Colorado. The entire Project area lies within the breeding range of the species, and the Brewer's sparrow is known to occur in suitable habitats throughout the entire Project area during the breeding season (mid-April through July) (Rotenberry et al. 1999).

Brown-capped Rosy Finch (*Leucosticte australis*) – State: Wyoming

The species inhabits the mountainous areas of extreme southern Wyoming through Colorado and into northern New Mexico. The species is considered relatively sedentary and only migrates elevationally with the seasons. Brown-capped rosy finches inhabit cliffs, caves, rock slides, or old buildings during breeding season and open areas including alpine tundra and high parks and meadows during the winter. Brown-capped rosy finches rarely nest below 10,000 feet (WGFD 2010a). The species forages on seeds, insects, and spiders (Johnson et al. 2000). The Project area lies on the boundary of the known range for the species in Colorado and Wyoming (WGFD 2010a). The brown-capped rosy finch may forage and winter in the Project area.

Burrowing Owl (*Athene cunicularia*) – BLM: Wyoming, Utah; State: Wyoming, Colorado, Utah

The burrowing owl is a small, ground-dwelling owl with relatively long legs. The species often is seen active during the day, with peaks at dawn and dusk. The burrowing owl is a neotropical migrant that breeds throughout the Western United States and migrates to southern California and Central America during the winter. The species lives in a variety of shrub-dominated or sparsely vegetated habitats in deserts, grasslands, prairies, farmland, and sagebrush steppe communities. They nest in previously excavated burrows in in the ground and are largely dependent on prairie dog colonies or other fossorial mammals for suitable nesting sites (NatureServe 2009). Occasionally, burrowing owls nest in manmade structures such as culverts. The entire Project area lies within the breeding range of the species and the burrowing owl is known to breed and forage throughout the Project area (Bosworth 2003). More than 60 known burrowing owl occurrences fall in the Project area in Colorado, Utah, and Wyoming.

Bushtit (*Psaltriparus minimus*) – State: Wyoming

The bushtit is found throughout much of the western United States from extreme southern British Columbia south through central Mexico to Guatemala. The species inhabits a wide variety of habitats from forested mountains to arid brush. Bushtits tend to prefer open mixed woodland with some evergreen foliage or shrubby understory. In the Project area, the bushtit nests only in juniper woodlands (WGFD 2010a). The species forages by gleaning small insects and spiders from vegetation (Sloane 2001). The Project area is within the known range of the bushtit, and the species is likely to breed and forage in suitable habitats in the Project area.

California Floater (*Anodonta californiensis*) – State: Wyoming, Utah

The California floater is a freshwater mussel that inhabits lakes, ponds, and low-gradient streams (UDWR 2011a). There are currently seven known California floater populations in eastern Utah. Several historic populations (including Utah Lake) have been extirpated, and reported sightings of the California floater in Tooele County have not been verified (Oliver and Bosworth 1999). The distribution of the California floater in Wyoming is limited to extreme western Lincoln and Uinta counties (WGFD 2010a). The only known California floater population in the Project area occurs in the Burraston Ponds south of Mona (1 mile of the centerline of Link U650). Specimens have been collected at this location.

Canvasback (*Aythya valisineria*) – State: Wyoming

The WGFD classifies the canvasback as a Species of Special Concern with a Native Species Status of 3 because its breeding population in Wyoming is restricted in numbers, habitat is restricted, and is vulnerable with no recent or on-going significant loss (WGFD 2010a).

Canvasbacks are ecological specialists and require deep, open, permanent ponds, marshes and potholes for feeding, resting, and courtship activities. They are omnivorous and their diet consists of aquatic vegetation and aquatic invertebrates.

Heritage data indicated the canvasback is not known to occur in the Project area (WYNDD 2011). However, Christmas Bird Count and Breeding Bird Survey data include occurrences of the species near water bodies in the Project area (Gough et al. 1998). Seasonal migrants of the species may occur in portions of the Project area.

Canyon Mouse (*Peromyscus crinitus*) – State: Wyoming

Canyon mouse habitat distribution includes Oregon south to northwestern Mexico and east to Colorado and Wyoming. The species is considered rare in Wyoming as it is likely limited to isolated bluffs and tabletop mesas of Sweetwater County. In Wyoming, the canyon mouse occurs in limber pine or juniper areas with sandy soil for digging burrows or sandstone rock outcrops that provide shelter. A portion of the Project area lies within the range of the canyon mouse in northeastern Utah, northwestern Colorado, and southwestern Wyoming (WGFD 2010a). The species is likely to breed and forage in suitable habitat in the Project area.

Caspian Tern (*Hydroprogne caspia*) – State: Wyoming

The Caspian tern is found throughout the world. In North America, the species has a widely scattered distribution and inhabits coastal estuarine, salt marsh, and islands along the coastlines to rivers and salt lakes in the interior of the continent. Caspian terns feed primarily on fish, only occasionally taking crayfish and insects (Cuthbert and Wires 1999). There is a single known occurrence of the species on the edge of the Project area at Lake Boreham west of Myton, Utah, along Link U430. The Project is within the known range of the Caspian tern and the species is likely to breed and forage in the Project area.

Chestnut-collared Longspur (*Calcarius ornatus*) – State: Wyoming

The chestnut-collared longspur's breeding range includes southern Alberta to southern Manitoba, southeast of the Rocky Mountains to northeastern Colorado, western Kansas, north-central Nebraska, and western Minnesota, with a non-breeding range that includes California, northern Arizona, eastern New Mexico, eastern Colorado, and central Kansas south to northern Sonora, Chihuahua, Zacatecas, San Luis Potosi, and southern Texas. Cropland/hedgerow, grassland/herbaceous, and desert are all terrestrial habitats of the chestnut-collard longspur. During the breeding season, the species uses level to rolling mixed-grass and shortgrass uplands and moist lowlands in drier habitats. Grasslands and deserts with primarily grasses and forbs, as well as cultivated fields near water sources, are used during non-breeding parts of the year. The species avoids shrubby areas but uses scattered shrubs and other lower perches for singing (WGFD 2010a). The chestnut-collared longspur is known to occur in the Project area (WYNDD 2011) and is likely to breed and forage in suitable habitat in the Project area in Colorado and Wyoming.

Clark's Grebe (*Aechmophorus clarkii*) – State: Wyoming

The breeding range of Clark's grebe extends from Washington to Wyoming, south to California, Arizona, New Mexico, and Mexico and winters on the Pacific coast from central California south to Mexico. Clark's grebe habitats include marshes, lakes, and bays during migration and also along sheltered seacoasts in winter. They typically nest among tall plants growing in water on the edge of large areas of open water systems including estuaries, lagoons, rivers, lakes, and wetlands. Drought-related habitat changes have degraded some of the historic nesting sites and reduced the number of nesting pairs detected during the past several years (WGFD 2010a). There are known occurrences of Clark's grebe near alternative routes.

Cliff Chipmunk (*Tamias dorsalis*) – State: Wyoming

Cliff chipmunk habitat distribution includes from southern Idaho south into northern Mexico. The species is considered rare in Wyoming as it is limited to areas of rock outcrops near Sage Creek in Sweetwater County. The cliff chipmunk inhabits steep, rocky hillsides, rock outcrops, cliffs, and talus slopes in juniper woodlands where it nests in cliff crevices, rocky bluffs, and underground burrows. A portion of the Project area lies within the range of the cliff chipmunk in northeastern Utah, northwestern Colorado, and southwestern Wyoming (WGFD 2010a). The species is likely to breed and forage in suitable habitat in the Project area.

Colorado River Cutthroat Trout (*Oncorhynchus clarki pleuriticus*) – BLM: Wyoming, Colorado, Utah; USFS: Ashley, Manti-La Sal, and Uinta National Forests; State: Wyoming, Colorado, Utah

The Colorado River cutthroat trout is endemic to the cold tributaries of the Green and Colorado River systems where it occupies headwater streams and mountain lakes. The species is threatened by loss, degradation, and fragmentation of habitat; overutilization; hybridization with nonnative trout; and disease (Bosworth 2003). The range of the species has dramatically declined since the mid-1800s and currently occupies approximately 13 percent of its historic range (Hirsch et al. 2006). Recent conservation actions and re-introductions have helped to reduce threats and stabilize populations. Rangewide populations are probably increasing (Bosworth 2003). The Colorado River cutthroat trout is known to occur in the Project area in headwater streams of the Green, Little Snake, Colorado, and Yampa rivers. Known occurrences crossed by centerlines occur in the Indian Creek where crossed by Link U630 and in South Fork Gordon Creek where crossed by Link U537

Columbia Spotted Frog (Rana luteiventris) – BLM: Wyoming, Utah; USFS: Ashley, Manti-La Sal, and Uinta National Forests; State: Wyoming, Utah

The Columbia spotted frog is a highly aquatic frog with a relatively large range in the northwestern United States and British Columbia (Stebbins 2003). An inhabitant of ponds, creeks, streams, and lakes, they are frequently found in areas with dense willows (*Salix* spp.) and basking sites (Reaser and Pilliod 2005). The species is not known to occur in Colorado, and the Project area is outside of the species range in Wyoming (WGFD 2010a). In Utah, populations of Colombia spotted frogs have declined and are threatened by habitat loss, competition with nonnative species, and disease (Bailey et al. 2006). The Columbia spotted frog is known to occur in Juab, Sanpete, Utah, and Wasatch counties in Utah (NatureServe 2009). Known occurrences within 1-mile of alternative routes are along Links U600, U631, and U650. Known occurrences are south of Burraston Ponds (south of Mona, Utah) in the creeks and washes where it is crossed by Link U650.

Columbian Sharp-tailed Grouse (*Tympanuchus phasianellus columbianus*) – BLM: Wyoming, Colorado, Utah; State: Wyoming, Colorado, Utah

The Columbian sharp-tailed grouse is one of six recognized subspecies of the sharp-tailed grouse in North America, based on geographic location, size, plumage, and types of habitat that it occupies. The Columbian sharp-tailed grouse inhabits big sagebrush (*Artemisia tridentata*), shrubsteppe, mountain shrub, and riparian shrub plant communities. It nests near or under shrubs or small trees if available (Hoffman and Thomas 2007). Leks of Columbian sharp-tailed grouse are on knolls, ridge-tops, or benches that are higher than the surrounding topography; leks are often in taller vegetation and shrub cover than the other subspecies. Nests are typically located within 0.6 mile of the lek at which they were hatched (Giesen and Connelly 1993). The species does not migrate outside of the breeding range, but may move short distances due to snow. Columbian sharp-tailed grouse is known to occur in the Project area in south-central portion of Wyoming in Carbon County immediately west and north of the Medicine Bow National Forest and in Moffat and Rio Blanco counties in Colorado (Hoffman and Thomas 2007). There are known occurrences in the Project area along Link C13.

Common Loon (*Gavia immer*) – State: Wyoming

The common loon's breeding range includes Iceland, Greenland, and the lake regions of the northern United States and Canada. The winter range is along the Pacific, Atlantic, and Gulf coasts. In Wyoming, the common loon distribution is small and nests only occur in northwestern parts of the state, although the common loon is found on lakes across most of Wyoming during migration. Breeding habitat requires both shallow and deep water areas with nest sites on small islands, quiet backwaters, or mainland shores. Ideal common loon nesting lakes have at least partially forested, rocky shorelines; an area of shallow water with emergent vegetation; and a steep slope along the shoreline for an underwater approach to nests (WGFD 2010a). Given its range and predicted distribution, the common loon is likely to occur in the Project area.

Common Shiner (*Luxilus cornutus*) – State: Wyoming, Colorado

The common shiner inhabits riverine systems across the eastern United States and Canada west to eastern Wyoming (WGFD 2010a). The species is not found in the Project area, but inhabits the Platte River system that may be affected from drawdown of water from the Platte River watershed as a result of project-related water usage.

Cornsnake (*Elaphe guttata*) – BLM: Utah; State: Utah

The cornsnake is primarily known from east of the continental divide (Bosworth 2003). The species is found in moist areas such as stream courses, canyons, arroyos, mountain streams, and farmland. Important components of cornsnake habitat are a permanent water source and good cover for daytime retreat or hibernation. Although primarily a diurnal species, this snake is active at night in warm weather (Degenhardt et al. 1996; Stebbins 2003). This constrictor's flattened belly makes it an excellent climber, enabling it to forage in trees and shrubs for small mammals, lizards, birds and their eggs, and even climb cave walls while hunting bats (Degenhardt et al. 1996; Stebbins 2003). Scattered populations of cornsnake occur in Utah along the Colorado and Green River corridors from Moab in Grand County to Dinosaur National Monument in Uintah County (Bosworth 2003). Suitable habitat for the cornsnake occurs in the Project area and the species may occur along alternative routes that are near the Green and Colorado rivers and their tributaries.

Desert Bighorn Sheep (*Ovis canadensis nelsoni*) – BLM: Colorado; USFS: Manti-La Sal National Forest

The desert bighorn sheep is at home in the rugged, steep mountains and canyons of the western United States and northern Mexico. The range of *O. c nelsoni* extends from central Nevada, across the southern third of Utah, northwestern Arizona, and southern California (Shackelton 1985). For a detailed species account, refer to Section 3.2.7.4.

Devil Crayfish (*Cambarus diogenes*) – State: Wyoming

The devil crayfish are crustaceans with red tips on their pincers and along the margins of their body. The species has a large native range from Ontario, Canada, to Texas and Wyoming to North Carolina. The species builds burrows in forested habitats near temporary or permanent water or where the water table is near the surface (WGFD 2010a). There are no known occurrences of the species in the Project area; however, potentially suitable habitat may be present in the Project area.

Dwarf Shrew (*Sorex nanus*) – State: Wyoming

Local populations of dwarf shrew are distributed from Montana and South Dakota south to Arizona and New Mexico. The dwarf shrew likely occurs in small isolated populations as it is considered rare in Wyoming. The dwarf shrew is not limited to areas near permanent water and occurs in diverse habitats including alpine tundra, subalpine forests, rock-sides, montane forests, and foothills to arid shortgrass prairie. A portion of the Project area lies within the range of the dwarf shrew in northeastern Utah, northwestern Colorado, and southwestern Wyoming (WGFD 2010a). The species is likely to breed and forage in suitable habitat in or near the Project area.

Eastern Red Bat (*Lasiurus borealis*) – State: Wyoming

The habitat distribution of the eastern red bat includes most of the eastern United States from the Continental Divide to Canada south to Mexico. The red bat occurs seasonally in the eastern third of Wyoming and is considered rare in the state. Red bat foraging habitats include forested areas, riparian corridors, and shelter belts of vegetation where they primarily predate moths and other soft bodied insects. Roosts typically occur in mature hardwoods, shrubs, and conifers, and occasionally on the ground in leaf litter. A portion of the Project area lies within the range of the eastern red bat in southwestern Wyoming (WGFD 2010a). The species is likely to breed and forage in suitable habitat in or near the Project area.

Eureka Mountainsnail (*Oreohelix eurekensis*) – State: Utah

The Eureka mountainsnail is endemic to Utah and has only been documented in Juab, Duchesne, and Tooele counties with one population in northern Grand County. The species of terrestrial snail is found in shrubland and forested habitats, usually around limestone outcrops or soils with high calcium concentration (UDWR 2011a). There is one known Eureka mountainsnail occurrence in the Project area in the Red Narrows on the southern end of Uinta National Forest and other occurrences have been noted in vicinity. The Eureka mountainsnail is likely to occur in suitable habitats in the Project area.

Fairy and Tadpole Shrimp (combined account) – State: Wyoming

Fairy shrimp are found throughout North America. Tadpole shrimp inhabit areas west of the Mississippi River and in the Arctic of North America. These species range in size from 0.4 to 2.4 inches in length. Both fairy and tadpole shrimp inhabit temporary wetlands as well as permanent waters (WGFD 2010a). There are no known occurrences of the species in the Project area; however, potentially suitable habitat may be present in the Project area.

Fatmucket (*Lampsilis siliquoidea*) – State: Wyoming

The fatmucket is known from river systems throughout the Midwest as far west as Wyoming (WGFD 2010a). The species is not found in the Project area, but inhabits the Platte River system that may be affected from drawdown of water from the Platte River watershed as a result of project-related water usage.

Ferruginous Hawk (*Buteo regalis*) – BLM: Wyoming, Colorado, Utah; State: Wyoming, Colorado, Utah

During the breeding season, ferruginous hawk habitat includes grasslands, agricultural lands, sagebrush/saltbush/greasewood shrub lands and the interface between pinyon-juniper and shrubsteppe habitats. The species is known to breed from the Canadian Prairie Providences south to Oregon, Nevada, Arizona, and Oklahoma (WGFD 2010a). Nesting sites are elevated, often in cliffs, buttes, and creek banks. During the winter, the species migrates south to the central and southern portions of its breeding range south into Baja California where it uses open farmlands, grasslands, deserts, and other arid regions (WGFD 2010a). The species' diet consists of lagomorphs, pocket gophers, and prairie dogs, but also can include other small mammals and birds (Bechard and Schmutz 1995).

The western two-thirds of Carbon County has one of the highest nesting densities of ferruginous hawks in Wyoming (BLM 2012d). In Colorado, ferruginous hawks nest in the eastern prairies, but have also been observed in the northwestern portion of the state (Beidleman 2000). The species occurs throughout most of Utah, in appropriate habitat. It is most prevalent in the southern Bonneville Basin in southwest Utah and the Colorado Plateau in eastern Utah (Bosworth 2003). The species is known to breed and forage and is believed to be relatively common throughout the Project area.

Flammulated Owl (*Otus flammeolus*) – USFS: Ashley, Manti-La Sal, and Uinta National Forests

The flammulated owl is a migratory cavity-nesting owl of mid-elevation, open ponderosa pine or other similarly structured dry forest. Nesting occurs from southernmost British Columbia through the forested ranges of Washington, Oregon, and portions of California and Nevada into central Mexico (Mccallum 1994). The species winters from central Mexico to Guatemala (Ehrlich et al. 1988) with migration most likely being tied to prey availability. The species consumes nocturnal arthropods, especially moths, beetles, crickets, and grasshoppers (Mccallum 1994). Flammulated owls inhabit mid-level open conifer forests, and are associated with ridges and upper slopes. The species is a secondary cavity nester and

prefers mature growth forest. The Project area is within the known breeding range of the flammulated owl and the species is known to occur on the Ashley, Uinta, and Manti-La Sal National Forests (USFS 2013b). The flammulated owl has been observed in the Project area north of Helper, Utah, along Link U545 (UNHP 2012).

Flannelmouth Sucker (*Catostomus latipinnis*) – BLM: Wyoming, Colorado, Utah; State: Wyoming, Utah

The flannelmouth sucker inhabits pools or streams and large rivers with little to no vegetation and clear to murky waters over rock, gravel, or mud substrate. The species was once widespread throughout the Colorado River basin but currently only occupies 45 percent of their historic range (WGFD 2010a). Threats to the species include habitat fragmentation and competition and hybridization with nonnative fishes (WGFD 2010a). Current known distribution of the flannelmouth sucker includes the Little Snake (Carbon County) and Green (Sweetwater County) River drainages in Wyoming; the Little Snake and Green (Moffat County) and Colorado (Mesa County) River drainages in Colorado; and the Colorado River drainage including the Colorado (Grand County), Green (Uintah, Emery, and Grand counties), San Rafael (Emery County), and Price (Carbon County) rivers in Utah (UDWR 1998). Some alternative routes are within the known range of the flannelmouth sucker in Wyoming, Colorado, and Utah and the species is known to occur in the Project area.

Flathead Chub (*Platygobio gracilis*) – State: Wyoming, Colorado

The flathead chub inhabits turbid rivers of the Great Plains from the Northwest Territory in Canada south to Oklahoma and New Mexico (WGFD 2010a). The species is not found in the Project area, but inhabits the Platte River system that may be affected from drawdown of water from the Platte River watershed as a result of project-related water usage.

Forster's Tern (*Sterna forsteri*) – State: Wyoming

The breeding range for Forster's tern includes the Central Prairie Provinces of Canada south to southern California, western Nevada, southern Idaho, northern Utah, northern and eastern Colorado, central Kansas, western, Nebraska, northern Iowa, northwestern Indiana, to eastern Michigan; coastally from northeastern Mexico, southeastern Texas to southern Alabama; along the Atlantic coast from Long Island to South Carolina. Forster's tern winters in central California and Baja California to Oaxaca and Guatemala; Costa Rica; northern Veracruz to western Florida; Virginia to northern Florida; Bahamas; and Greater Antilles. The Forster's tern breeds in marshes with lots of open water and large stands of island-like vegetation. It winters in marshes, coastal beaches, lakes, and rivers (McNicholl et al. 2001). Three occurrences of the Forster's tern are along Link W30 southwest of Rawlins near Hogback Lake.

Franklin's Gull (*Leucophaeus pipixcan*) – State: Wyoming

During summer, Franklin's gull is found in Alberta and Saskatchewan, Canada south to northern South Dakota with disjunct populations in northwestern Wyoming, along the Great Salt Lake in Utah and near Reno, Nevada. The species winter along the Pacific coast of South America. The species breeds along freshwater marshes and always nests over water on floating mats built on the water's surface, on muskrat houses, or on floating debris. Franklin's gull has a highly variable diet, feeding on invertebrates (earthworms, grubs, insects, snails); seeds; and other vegetable matter, mice, fish, and crabs (Burger and Gochfeld 2009). Most Franklin's gull populations are known from outside of the Project area. However, the species may occur in suitable aquatic habitats in the Project area in Wyoming (WGFD 2010a).

Fringed Myotis (*Myotis thysanodes*) – BLM: Wyoming, Colorado, Utah; State: Wyoming, Utah

The fringed myotis occurs in a wide range of habitat from lowland riparian and desert shrub to montane forests and meadows at an elevation range of 2,400 to 8,900 feet. It typically roosts in caves, mines, and buildings (Bradley et al. 2006). The fringed myotis most likely does not migrate, but hibernates during the winter (Oliver 2000). It is widely distributed throughout Wyoming, Colorado, and Utah but is not common. The Project area is within the range of the species and contain suitable habitat. The fringed myotis is likely to forage throughout the Project area in Wyoming, Colorado, and Utah.

Grasshopper Sparrow (*Ammodramus savannarum*) – BLM: Utah; State: Wyoming, Utah

The grasshopper sparrow is a neotropical migrant that breeds throughout the Great Plains and eastern United States and spends winters in the southern United States, Mexico, and Central America. It prefers grasslands with moderately deep litter, patches of vegetation alternated with bare surface areas, and sparse woody vegetation coverage (Smith 1963). Grasshopper sparrows nest on the ground at the bases of grass clumps from April to June (Vickery 1996). The Project area is on the border of the species' range and breeding is believed to be rare in the western Wyoming and Utah (Bosworth 2003; WGFD 2010a). Grasshopper sparrow may occasionally breed in the Uinta Basin, but no heritage records exist in the area (Bosworth 2003). The grasshopper sparrow is likely to occur transiently in the Project area during seasonal migrations, and may occasionally use the Project area for breeding or foraging.

Great Basin Gopher Snake (*Pituophis catenifer deserticola*) – State: Wyoming

The Great Basin gopher snake is found from southern British Columbia to northern Arizona and from Nevada to Colorado in sagebrush and desert habitats (Stebbins 2003; WGFD 2010a). The species primarily feeds on small mammals such as mice, gophers, ground squirrels, and rabbits (WGFD 2010a). Except for Carbon County, Wyoming, the entire Project area lies within the known range of the Great Basin gopher snake. The Great Basin gopher snake is likely to occur in the Project area.

Great Basin Pocket Mouse (*Perognathus parvus*) – State: Wyoming

The Great Basin pocket mouse distribution includes the majority of the Great Basin from south-central British Columbia south to southern California and northern Arizona. The species is considered rare in Wyoming as it only occurs in the southwestern corner of the state. Sagebrush dominated areas, steppe and arid open shrub, and woodlands are typical Great Basin pocket mouse habitats. A portion of the Project area lies within the range of the Great Basin pocket mouse in southwestern Wyoming and central Utah (WGFD 2010a). The species is likely to breed and forage in suitable habitat in the Project area.

Great Basin Spadefoot (*Spea intermontana*) – BLM: Wyoming, Colorado; State: Wyoming

The Great Basin spadefoot lives in drier habitats than most amphibians. It is fairly abundant throughout the Great Basin, but becoming rarer at the extremities of the Great Basin in southern Wyoming and western Colorado (UDWR 2005a). The Great Basin spadefoot is found in sagebrush communities below 6,000 feet with loose soil for burrowing. The Great Basin spadefoot is found primarily west of the Continental Divide in the Wyoming Basin and Green River Valley in Wyoming (WGFD 2005c, 2010a) and north of the Uncompahgre Plateau in Colorado (CPW 2010). The Project area is almost entirely within the known range of the Great Basin spadefoot. There are numerous known occurrences in the Project area in Wyoming and Colorado.

Greater Sandhill Crane (*Grus canadensis tabida*) – State: Wyoming, Colorado

A large, heavy-bodied, long-lived bird, the greater sandhill crane breeds on tundra, grasslands, and marshes (National Geographic Society 1999), in isolated bogs and marshes surrounded by shrub and forest habitat (Tacha et al. 1992). The species nests across large expanses of Siberia, Alaska, and northern Canada but also in much smaller areas around the Great Lakes, Idaho/Wyoming border, northern Nevada, northwestern Colorado, Oregon, the southeastern United States, and Cuba (Tacha et al. 1992). Breeding does not occur until the birds reach 2 to 7 years of age, with both parents providing care of the young. Large flocks form during migration, composed of numerous pairs or family groups. The wintering range includes south-central California; southeastern Arizona; southern New Mexico; west and central Texas; and scattered areas along the Gulf Coast, peninsular Florida, and northern Mexico (Tacha et al. 1992). Known occurrences in the vicinity of the Project area are along the North Platte, Little Snake, and Yampa rivers and in Routt National Forest. Only two confirmed occurrences are in the Project area. These occurrences are where Link C100 crosses the Yampa River, approximately 11 miles east of Craig, Colorado. In addition to these known occurrences, greater sandhill cranes are likely to breed, forage, and migrate through the Project area.

Greater Short-horned Lizard (*Phrynosoma hernandesi*) – State: Wyoming

The greater short-horned lizard can be found from extreme southern Canada to southern Durango, Mexico, and from Nevada to western Nebraska. The species feeds primarily on ants, but will also eat other insects, snails, and spiders (Stebbins 2003). There are no known occurrences of the species in the Project area; however, the entire Project area falls within the range for the species.

Iowa Darter (*Etheostoma exile*) – State: Wyoming, Colorado

The Iowa darter inhabits clear to lightly turbid water in small cool lakes, bogs, ponds, and in slow-moving waters of small brooks to medium rivers. The species is known to occur throughout much of southern Canada and northern United States from New York to Montana and as far south as New Mexico (Fuller and Neilson 2012; WGFD 2010a). In the Project area, the Iowa darter is known to occur in the Yampa River between Dinosaur National Monument and Craig, Colorado. In Utah, the species is known from a single collection in the Green River near Jensen (Fuller and Neilson 2012). There are no known occurrences of the species in the Project area in Wyoming; however, the northeastern end of the Project area in Carbon County, Wyoming, lies within the known range of the Iowa darter in Wyoming (WGFD 2010a). The Iowa darter may occur in suitable aquatic habitats in the Project area.

Juniper Titmouse (*Baeolophus ridgwayi*) – State: Wyoming

The juniper titmouse is a year-round resident in western North America from southern Oregon west to Wyoming and south to Arizona, Sonora, and western Texas. Terrestrial habitats of this titmouse species include juniper woodlands, sagebrush, and other mixed shrub woodlands but require old-growth woodlands with open canopy and higher herbaceous ground cover. The juniper titmouse uses secondary cavities for nest, often using woodpecker holes or natural cavities (WGFD 2010a). The Project area is within the known range of the species and suitable habitat is known to occur near alternative routes in Utah, Wyoming, and Colorado. Ten occurrences of the juniper titmouse have been noted in the Project area along Links W492, W520, and W493 in southwestern Wyoming. The juniper titmouse is known to breed and forage in the Project area.

Kit Fox (*Vulpes macrotis*) – BLM: Colorado, Utah; State: Colorado, Utah

The kit fox is a desert adapted fox that is absent from high elevation montane regions. Populations are associated with sparsely vegetated arid habitat, primarily greasewood, shadscale, or sagebrush-dominated

habitat (Bosworth 2003). They also are found adjacent to irrigated crop land and urban fringes, and may use manmade structures for denning. Kit fox are primarily carnivorous and have adapted to obtain water requirements directly from prey, but have to consume prey over and above energetic requirements to do so. In addition, kit fox den during the day and have nocturnal movement patterns to minimize water loss and reduce heat loads (Cypher 2003). Kit fox populations occupy habitats that provide favorable combinations of low predator numbers, sufficient prey, and soils suitable for denning (UDWR 2011a). Home range size varies according to sex, food availability, season, and geographic location. Population density fluctuates according to food availability as a consequence of climatic conditions, namely drought. Further limiting factors include predation by coyotes (the primary source of mortality for kit fox), collisions with vehicles, and accidental death through anthropogenic development (Cypher 2003). Increased availability of water in arid environments and introduction of invasive weeds are known to threaten kit fox populations by extending the distribution of competitors (coyotes) into kit fox habitat and altering the availability of prey species. Alternative routes are within the known range of the species in Colorado and Utah and contain suitable habitat. The kit fox is known to occur throughout desert shrub and sagebrush communities near alternative routes.

Land Snails (combined account) – State: Wyoming

Land snails are found throughout North America. Approximately 1,000 land snails and slugs inhabit most terrestrial habitats across North America. These species feed on plants, litter, wood, and dead animals (WGFD 2010a). There are no known occurrences of these species in the Project area; however, since these species are found in most terrestrial habitats, potentially suitable habitat is likely present in the Project area.

Lark Bunting (*Calamospiza melanocorys*) – State: Wyoming

The breeding range of the lark bunting extends from southern Alberta and Saskatchewan south to northeastern New Mexico and the Texas Panhandle. The wintering range extends from central Texas west to Baja California and south to central Mexico. The species inhabits grasslands and shrub-steppe of high plains including agricultural areas. Lark buntings feed on small seeds, grain, insects, and arachnids (Shane 2000). There are three known occurrences in the Project area and all are in Utah. The lark bunting is considered to be an abundant summer resident in Wyoming (WGFD 2010a). The lark bunting is likely to breed and forage in the Project area.

Least Chub (*Iotichthys phlegethontis*) – BLM: Utah; State: Utah

Regulatory Status

In June 2007, the least chub was petitioned for listing under the ESA based on threats to habitat including livestock grazing, mining (including peat mining and oil and gas leasing and exploration), urban development, and water withdrawal and diversion (73 FR 61007). FWS issued a 12-month finding on a petition to list the least chub in June of 2010; they found that listing of the least chub was warranted but precluded by higher priority actions (75 FR 35398). The least chub had been previously been listed as a candidate species but was removed from the candidate species list in August 2014 (79 FR 51042). Currently, only six known wild populations remain, but one of these is considered functionally extirpated. The species currently has a listing priority number of 7 (76 FR 66370-66439).

Taxonomy and Life History

The least chub is endemic to the Bonneville Basin of Utah. E.D. Cope first described the least chub from specimens collected by H.C. Yarrow and H.W. Henshaw from the Bear River in 1872 (60 FR 50518).

Adult least chubs can range from 0.2 to 2.5 inches and are identified by their upturned or oblique mouth as well as the absence of a lateral line. The least chub usually has eight dorsal fin rays and eight anal fin rays. Algae, midges, microcrustaceans, and algae are common diet items for the least chub.

Least chub begin spawning in the spring when water temperatures increase, releasing eggs over extended periods but only a few eggs at a time. Peak spawning occurs in May but the reproductive months are from April through August. The least chub's adhesive eggs are released over aquatic vegetation where they sink and attach. The fertilized eggs hatch and young larvae use that submerged vegetation as an oxygenated habitat with an abundance of food.

Distribution and Habitat Requirements

Once having a wide distribution in the Bonneville Basin of northwestern Utah, the least chub occupied streams, springs, and ponds and was quite common in its preferred habitats. Least chub have been observed in the Beaver River, Provo River, tributaries of the Great Salt Lake and Sevier Lake as well as Utah Lake, Parowan Creek, Clear Creek, Leland Harris Spring Complex, and the Gandy Salt Marsh Complex in the Snake Valley.

The species is now limited to the Snake Valley of the Bonneville Basin, occurring on a mixture of federal, state, and private lands at five locations. Small populations of least chub exist in Central Spring (Bishop Spring Complex in Millard County) and Miller Spring (Juab County), Leland Harris Spring Complex (Juab County) and Gandy Salt Marsh Complex (Millard County), and Snake Creek (60 FR 50518).

The least chub has historically occurred in a variety of habitat types but presently occupy springs, marshes and pools, and stream habitats. Springs exhibit cool stable temperatures, relatively low conductivity, and little variation in dissolved oxygen content. The marsh and pool environments exhibit extreme diurnal fluctuations in dissolved oxygen and water temperature that may vary. Seasonal water quality changes in marsh and stream segments tend to influence fish movement between different habitat types. Plentiful aquatic vegetation along with muddy substrates is also an important habitat character for the least chub (Christ 1990).

Primary Threats to Survival

Habitat loss and degradation are one of the major causes of the least chub's decline. Reports of livestock trampling and grazing have been linked to fish habitat degradation in streams and springs (Christ 1990). Predation by nonnative fish is another known factor contributing to native desert fish declines in southwestern North America (Minckley et al. 1991). Spring complex surveys indicate areas with nonnative fish introductions maintain few if any least chub populations. In addition to introductions of game fish, as least chub predators (largemouth bass, rainbow trout, common carp, and brook trout), other nonnative fish with similar diets are considered potential competitors (mosquitofish and rainwater killifish).

Occurrence in the Project Area

UDWR studies in 1990s and 2000s have monitored a least chub population in Burraston Ponds near Mona, approximately 1 mile from Links U640 and U650. This is the only known population in the vicinity of the Project area.

Lesser Scaup (*Aythya affinis*) – State: Wyoming

The breeding range of the lesser scaup extends from northern Alaska to Quebec and as far south as southern Wyoming. The wintering range covers the southern United States south to Honduras and along

both coasts of the continental United States and portions of central United States including Colorado. Lesser scaups often inhabit fresh to moderately brackish, seasonal and semi-permanent wetlands and lakes with emergent vegetation such as bulrush (*Scirpus* spp.), cattail (*Typha* spp.), and river bulrush (*Scirpus fluviatilis*). This duck dives to feed on aquatic invertebrates such as insects, crustaceans, and mollusks; however, the species also may eat seeds and vegetative portions of aquatic plants (Austin et al. 1998). The lesser scaup is known to migrate through the Project area and is likely to breed, forage, and nest in aquatic habitats in the Project area.

Lewis's Woodpecker (*Melanerpes lewis*) – BLM: Utah; State: Wyoming, Utah

The breeding distribution of Lewis's woodpecker is associated with the distribution of ponderosa pine, although the species is also known to use riparian and mountain shrub habitats. It is an open country bird, found most often where trees are scattered on woodland edges, streamside trees, and recently burned forests with a good under-story of grasses and shrubs to support insect prey populations. Nests are excavated in trunks or large branches of large, dead, or decaying trees, including burned trees (Tobalske 1997). The Project area is within the known range of the Lewis's woodpecker and the species is known to breed and forage in the vicinity of the Project area in Colorado, Utah, and Wyoming (Cerovski et al. 2004; Tobalske 1997). There are three known occurrences of the Lewis's woodpecker in the Project area. One is where Link U402 crosses the Green River. The remaining two occurrences are near the junction of Nebo Creek and Spencer Canyon along Link U625 between Uinta and Manti-La Sal National Forests.

Little Brown Myotis (*Myotis lucifigus*) – State: Wyoming

This small bat is abundant in forested areas. In the west, it is found primarily in higher elevations and riparian areas in forest habitats (Bat Conservation International 2009b; Bradley et al. 2006). Little brown myotis hibernates in caves, abandoned mines, and tunnels in the east; however, winter roosts in the west are not known. Day roosts include hollow trees, rock outcrops, caves, mines and buildings (Bradley et al. 2006). One of North America's most wide-ranging bats, the little brown myotis occurs from Alaska, across Canada to the Atlantic, across much of the United States, and down to central Mexico (Tuttle 2006). There are no known occurrences of little brown myotis in or near the Project area; however, the entire Project lies within the range of the species.

Loggerhead Shrike (*Lanius ludovicianus*) – BLM: Wyoming

The loggerhead shrike is a predatory passerine bird that hunts from perches and impales its prey on thorns and barbed wire fences. The species has a wide distribution and can be found throughout the United States. Habitat is open country with short vegetation, particularly pastures with fence lines (Yosef 1994), old orchards, mowed roadsides, cemeteries, golf courses, agricultural fields, riparian areas, and open woodlands (Yosef 1996). Shrikes nest in a variety of trees and shrubs, where the degree of cover is the most significant determinant. The loggerhead shrike often nests in trees with thorns (e.g., Russian olive or honey locust, *Gleditsia triacanthas*), possibly to provide increased protection (Porter et al. 1975). The loggerhead shrike breeds throughout the Project area and is a year-round resident of much of the Project area in Colorado and Utah (Yosef 1996). There are several known occurrences of the loggerhead shrike near alternative routes.

Long-billed Curlew (*Numenius americanus*) – BLM: Wyoming, Colorado, Utah; State: Wyoming, Colorado, Utah

The long-billed curlew is the largest North American shorebird, and a neotropical migrant. It is endemic to the Great Plains and winters in coastal/inland areas of the southern United States and Central America. It nests primarily in short-grass or mixed prairie habitat with flat to rolling topography but moves to taller grasses when brood rearing. It lives and breeds in higher and drier meadowlands than most other

shorebird species (Parrish et al. 2002). The species commonly nests in cheatgrass (*Bromus tectorum*) dominated landscapes (Pampush and Anthony 1993) and agricultural fields in the Great Basin. The species is considered to be an uncommon summer resident in Wyoming (WGFD 2010a). The Project area is within the species' breeding range in Wyoming, Colorado, and Utah. The long-billed curlew has been observed near alternative routes near Hogback Lake southwest of Rawlins, Wyoming; along the Yampa River near Craig, Colorado; and in Duchesne and Juab counties, Utah. The long billed curlew is known to breed and forage in the Project area.

Long-eared Myotis (*Myotis evotis*) – BLM: Wyoming; State: Wyoming

The long-eared myotis is primarily associated with high elevation forest, but also has been found in other habitats ranging from lowland riparian and sagebrush to montane forest habitats. The species primarily roosts during the day in hollow trees; under exfoliating bark; crevices in small rock outcrops; and occasionally in mines, caves, and buildings. Night roosts are caves, mines, and bridges. Long-eared myotis are believed to be non-migratory and hibernate during the colder months (Bradley et al. 2006). The species is widely distributed throughout the Project area. Alternative routes are within the range of the species and contain suitable habitat. The long-eared myotis is likely to forage throughout the Project area.

Long-legged Myotis (*Myotis volans*) – State: Wyoming

Habitat for the long-legged myotis includes pinyon-juniper and Joshua tree woodland, montane coniferous forest, blackbrush, and sagebrush (Bradley et al. 2006). This bat hibernates in winter but is capable of winter activity. Hibernacula are most likely mines or caves, while day roosts may be hollow trees, rock crevices, caves, mines, or buildings. Foraging is in open areas, with moths being the primary food source (Bradley et al. 2006). The majority of nursery colonies are found in trees of sufficient age (100 years or more) to provide crevices and exfoliating bark (Bat Conservation International 2009c). The long-legged myotis is one of the most widely distributed bats of the western United States (Bat Conservation International 2009c). There are no known occurrences of long-legged myotis in or near the Project area; however, the entire Project area lies within the range of the species. Long-legged myotis are likely to forage near alternative routes.

Long-nosed Leopard Lizard (*Gambelia wislizenii*) – BLM: Colorado; State: Colorado

The long-nosed leopard lizard inhabits flat to gently sloping shrublands with scattered shrubs and other low plants. It is known to occur in Colorado and Utah. It is an uncommon species in Colorado, restricted to the west-central and southwest edge of the state (CPW 2010). The species is widespread and common in Utah. The southern portion of the Project area in Colorado and Utah is within the known range and distribution of the species and contains habitat for the long-nosed leopard lizard. The long-nosed leopard lizard is known to occur in the Project area.

McCown's Longspur (*Calcarius mccownii*) – State: Wyoming

The McCown's longspur breeds from southern Alberta and Saskatchewan south to northern Colorado and western Nebraska. Its winter range is primarily in western Texas extending through very southern New Mexico south to northern Durango, Mexico. During both breeding and wintering seasons, the species inhabits open habitat with sparse vegetation such as shortgrass prairie, and semi-arid shortgrass steppe. These birds feed on the seeds of grasses and forbs, insects such as grasshoppers, moths, and beetles, and other arthropods (With 2010). There are no known occurrences of McCown's longspur in the Project area. The Project area is on the boundary of the species' range in Wyoming. The McCown's Longspur may occur in suitable habitats in the Project area in Wyoming.

Merlin (*Falco columbarius*) – State: Wyoming

The merlin is a raptor that occurs in Eurasia and North America from the northern tree limit in North America south to Washington, Oregon, Montana, Idaho, Wyoming, and the western border of North and South Dakota. In North America, the merlin winters from British Columbia and the western and southern United States south to Venezuela and Peru. Open woodlands, savannah, grasslands, and shrub-steppe below 8,500 feet (2,600 meters) are typical merlin habitat. Merlin typically nest in large ponderosa pines, in old domed magpie nests, and near open sagebrush-grassland for foraging. Nesting sites seem to be selected based on easy access, high vantage of the surrounding area, and maximum nest concealment (WGFD 2010a). Three relatively recent merlin occurrences (1983 to 2007) have been noted in the Project area along Muddy Creek (Link W111), east of Hogback Lake, and along North Platte River (Link W30) (WYNDD 2011). The merlin is likely to breed and forage in the Project area.

Milk Snake (*Lampropeltis triangulum taylori*) – BLM: Colorado

The milk snake occurs in rocky thornscrub desert valleys, up through desert grasslands, into sagebrush desert, desert grassland, and open grassland in burrows of small mammals. Much of the Project area is within the known range of the milk snake. There are numerous know occurrences of the species in the Project area throughout Utah.

Moose (*Alces alces*) – State: Wyoming

In Wyoming, moose are considered common as they occupy a variety of habitats including Engelmann spruce, Douglas and subalpine fir, and lodgepole pine forests along riparian communities where willows and shrubs are available as food resources. Moose tend to summer in higher elevation conifer forests and winter in willow and deciduous habitats. A portion of the Project area lies in the predicted moose range of southwestern Wyoming and northeastern Utah (WGFD 2010a). The species is likely to breed and forage in suitable habitat in the Project area. Refer to Section 3.2.7.4 for more detailed information about moose in the Project area.

Mountain Plover (*Charadrius montanus*) – BLM: Wyoming, Colorado, Utah; State: Wyoming, Colorado, Utah

The mountain plover was formerly a candidate to be listed as threatened under the ESA. On September 9, 2003, the FWS withdrew the listing because newly acquired information indicated the threats to the species originally included in the proposal were not as significant as earlier believed (68 FR 53803). The mountain plover is associated with shortgrass prairie landscapes where the topography is fairly flat and the vegetation is sparse (Beidleman 2000), composed primarily of blue grama (*Bouteloua gracilis*) and buffalo grass (*Buchloe dactyloides*) (Parrish et al. 2002). Mountain plovers often breed near areas of excessive disturbance (Knopf and Miller 1994) and prairie dog colonies (Knowles and Stoner 1982). Mountain plovers migrate from their wintering grounds in the Central Valley of California and Mexico to breeding grounds in mid-March. Mountain plovers leave breeding grounds in August. Habitats used during wintering periods include plowed fields, heavily grazed annual grasslands, and burned fields (Knopf and Rupert 1995). In Wyoming, mountain plovers have been documented in every county and are known to breed in the Project area. In Colorado, populations are concentrated in and around the Pawnee and Comanche National Grasslands and in South Park, all outside of the Project area. The breeding population in Utah (Duchesne and Uintah counties) is in the Project area but has not been detected since 2002 and may have been extirpated (Bosworth 2003).

Mountain Sucker (*Catostomus platyrhynchus*) – BLM: Colorado; State: Colorado

The mountain sucker occurs throughout large portions of the western United States and Canada in smaller rivers and streams with a substrate of gravel, sand, and mud. It is typically found near undercut banks, eddies, small pools, and areas of moderate current. The Project area is within the southern portions of the species' range. Current known distribution includes the upper reaches of the White, Yampa, Green, and Colorado river basins (Belica et al. 2006; CPW 2010). The mountain sucker is known to occupy streams and rivers in the Project area.

Mountain Whitefish (*Prosopium williamsoni*) – State: Wyoming

The mountain whitefish occurs in the Mackenzie River drainage and the Northwest Territories in Canada; south through western Canada and northwestern United States in the Pacific, Hudson Bay, and upper Missouri River basins; to Truckee River drainage, Nevada; and as far southeast as Colorado and the Sevier River drainage in Utah. In riverine habitats, whitefish occur in creek; high-gradient medium river, pool, and riffle; and in lacustrine habitats in deep and shallow water. They also are found in cold mountain lakes and fast, clear or silty streams with large pools; and streams with gravel riffles for spawning (NatureServe 2011). Two mountain whitefish occurrences have been noted in the Yampa River between the Project area and Hayden, Colorado. The mountain whitefish is known to occur in the Project area.

North American Wolverine (*Gulo gulo luscus*) – State: Wyoming, Colorado; USFS: Ashley National Forest

Regulatory Status

The North American wolverine was originally submitted as a candidate species on January 6, 1989. The species was considered warranted for listing, but was precluded as of November 21, 2012 due to other higher priority listings. On August 13, 2014 the FWS withdrew a proposal to list the North American wolverine as threatened species. There are currently no critical habitat rules available for this species, but two conservation plans do address this species (the Cedar River Watershed Habitat Conservation Plan and West Fork Timber Habitat Conservation Plan).

Taxonomy and Life History

The wolverine belongs to the family Mustelidae; adult males weigh 12 to 18 kilograms (kg) and adult females weighing 8 to 12 kg (FWS 2015). Wolverines have round, broad heads; short, rounded ears; and small eyes; five toes on each foot with curved claws optimal for digging and climbing (FWS 2015). In appearance the wolverine resembles a small bear.

Distribution and Habitat Requirements

Wolverines require a lot of space, traveling long distances over rough terrain and deep snow, likely due to availability and distribution of food (FWS 2015). This leads to large home ranges that vary greatly (from less than 100 square kilometers to over 900 square kilometers) depending on availability of food, gender, age, and differences in habitat (FWS 2015). Wolverine body size is small relative to their home range, suggesting that their niche is relatively unproductive and requires foraging over large areas to meet their caloric needs (FWS 2015).

Wolverines prefer near-arctic conditions with deep persistent snow cover for denning; restricting them to high-elevation areas in the West. Year-round, they remain in areas that maintain deep snow into spring and cool temperatures throughout summer. Small and semi-isolated subpopulations exist in the

contiguous United States. Dispersers from these isolated subpopulations maintain genetic enrichment in the larger metapopulation.

Primary Threats to Survival

The primary threat to the North American wolverine is climate warming-related range and habitat loss. Wolverines depend on deep persistent snow cover for denning. Climate change will decrease wolverine range, further isolating subpopulations. Climate change is predicted to reduce wolverine habitat and range by 23 percent over the next 30 years and 63 percent over the next 75 years. The FWS predicts that by 2045, maintaining genetic diversity of the contiguous U.S. wolverine population in the currently occupied area will likely require human intervention to move individual dispersers between habitat patches. Other threats (harvest, inadequate regulatory mechanisms to protect against human recreational disturbance, infrastructure developments, and transportation corridors; and demographic stochasticity and loss of genetic diversity due to small effective population sizes), in conjunction with climate change, could significantly suppress an already stressed population.

Occurrence in the Project Area

Wolverines have the potential to occur in alpine areas at high elevations. The Project does not cross any areas known or likely to be occupied by wolverines, but dispersing wolverines could use intermountain valleys crossed by the Project. Wolverines in Wyoming are part of the northern Rocky Mountain population (FWS 2013). In Colorado and Utah, wolverines are believed to have been extirpated since the early 1900s (FWS 2013). One male wolverine was detected moving from the southern Greater Yellowstone area of Wyoming into the southern Rocky Mountains of Colorado, but there is no evidence that a wolverine population currently exists in Colorado (FWS 2013). In Utah, a wolverine was detected at a bait station on the north slope of the Uinta Mountains in 2014, although it is not known whether wolverines are residents or temporarily dispersing into Utah (UDWR 2014).

Northern Flying Squirrel (*Glaucomys sabrinus*) – State: Wyoming

The northern flying squirrel distribution ranges from Alaska through most of Canada, southward to the mountains of southern California, the southern Rocky Mountains, western South Dakota, the Great Lakes region, and the southern Appalachians. The species is considered uncommon in Wyoming as it is limited to western mountain ranges and isolated populations in the Black Hills and Sweetwater County in the state. The species prefers coniferous, deciduous, mixed, and riparian forests and woodlands. The northern flying squirrel often inhabits areas with sands of varying age, understory density, and composition; however, old-growth forests near wetlands or streams are ideal for its gliding form of locomotion, cavity nesting, and use of wood fungi and lichens for food. A portion of the Project area lies on the extreme edge of the predicted northern flying squirrel range in southwestern Wyoming and central to northeastern Utah (WGFD 2010a). The species is likely to breed and forage in suitable habitat in the Project area.

Northern Goshawk (*Accipter gentilis*) – BLM: Wyoming, Colorado, Utah; USFS: Ashley, Manti-La Sal, and Uinta National Forests; State: Wyoming, Utah

The northern goshawk is a large forest-dwelling raptor that inhabits old-growth forests in mountains and riparian zone habitats with a dense canopy (Daw and DeStefano 2001). Nests are typically in the largest trees, constructed of sticks just below the forest canopy (Speiser and Bosakowski 1987), and often occur in dead trees at elevations as low as 5,700 feet in Utah (Rodriguez 2012). The goshawk is partially migratory in the northern portion of its range where, in winters of food shortage, it migrates southward. In the Project area, the northern goshawk is found year-round in Wyoming and Utah. In Utah, it is an uncommon permanent resident found throughout the state in proper habitat, including montane conifer-aspen forests to the treeline (UDWR 1998). In Wyoming, it is found in both Sweetwater and Carbon

counties in primarily coniferous forests, especially Douglas fir and lodgepole pine and aspen (Cerovski et al. 2004). All three national forests crossed by the Project contain suitable habitat for the species. Northern goshawk is managed as a MIS in all three forests.

Northern Leatherside Chub (*Lepidomeda copei*) – BLM: Wyoming, Utah; State: Wyoming

The northern leatherside chub is one of two taxa formerly known as leatherside chub that was recently split into two species based on genetic differences (WGFD 2010a). The northern leatherside chub occurs in streams and rivers of the northeastern Bonneville Basin in Utah, Wyoming, and Idaho. The species is not native to the Project area but introduced populations have been observed in the Colorado and Green River systems (UDWR 2009c). The species spawns over cobble and gravel substrate in the spring and is threatened by habitat loss and fragmentation and competition, hybridization, and predation by other fish. Populations of northern leatherside chub have been declining (WGFD 2010a). Alternative routes are outside of the native range of the northern leatherside chub but introduced populations occur in the Project area.

Northern Leopard Frog (*Rana pipiens*) – BLM: Wyoming, Colorado; State: Wyoming, Colorado

The northern leopard frog occurs in wet meadows and the banks and shallows of marshes, ponds, lakes, reservoirs, streams, and irrigation ditches. In Wyoming, it inhabits the plains, foothills, and montane zones up to 8,500 feet (2,600 meters) (WGFD 2010a). In Colorado, the species occurs statewide in the mountains and lowlands (CPW 2010). Populations are known to be declining throughout the species range (WGFD 2010a). The Project area is within the known range of the species and suitable habitats are present in Wyoming, Colorado, and Utah. There are numerous know occurrences of the species in the Project area throughout all three states. In Utah, centerlines cross known occurrences in Ashley Creek where it is crossed by Link U320, in Willow Creek south of Ouray where it is crossed by Link U400, and in the Green River where it is crossed by Link U490.

Northern Pintail (*Anas acuta*) – State: Wyoming

The northern pintail is found throughout most of North America from northern Alaska to Costa Rica. This duck typically nests in open country with shallow, seasonal, or intermittent wetlands and low vegetation. Outside of breeding season, the species can be found in most types of aquatic habitat. The species feeds on grains, moist-soil and aquatic plant seeds, pond weeds, aquatic insects, crustaceans, and snails (Austin and Miller 1995). There are no known occurrences in the Project area; however, the entire project is within the known range of the northern pintail.

Northern Plains Killifish (*Fundulus kansae*) – State: Wyoming

The northern plains killifish inhabits riverine systems in the Great Plains region of North America (WGFD 2010a). The species is not found in the Project area, but inhabits the Platte River system that may be affected from drawdown of water from the Platte River watershed as a result of project-related water usage.

Northern Tree Lizard (*Urosaurus ornatus wrighti*) – State: Wyoming

Distribution data for the northern tree lizard are not complete for the United States and Canadian providences (NatureServe 2012). The northern tree lizard occurs in southwestern Sweetwater County, in Wyoming where it is considered extremely rare. The species inhabits rocky cliffs, canyon walls, steep exposures of bedrock, and large boulders in sagebrush and juniper habitats. The northern tree lizard predates spiders and insects when active while basking in the sun most of the day, and perching in shaded

areas in the hottest parts of the afternoon. A portion of the Project area lies within the range of the northern tree lizard in southwestern Wyoming (WGFD 2010a). The species is likely to breed and forage in suitable habitat in the Project area.

Olive-backed Pocket Mouse (*Perognathus fasciatus*) – State: Wyoming

Distribution of the olive-backed pocket mouse includes the northern Great Plains and Intermountain basins, from southern Alberta, Saskatchewan, and Manitoba south to northeastern Utah, southern Colorado, and eastern South Dakota. A variety of arid and semiarid upland habitats, typically sparsely vegetated grasslands and sagebrush-grasslands, are habitat for the olive-backed pocket mouse. This pocket mouse species occupies loose sandy to clay soils for burrowing (WGFD 2010a). The Project area is within the known range of the species and several occurrences of the olive-backed pocket mouse have been noted in the Project area. The olive-backed pocket mouse is likely to occur in suitable habitats throughout the Project area.

Oreohelix Mountain Snails (combined account) – State: Wyoming

Oreohelix mountain snails are land snails that live in the mountains in areas with canopy cover and leaf or needle litter. These snails are found in western North America from Saskatchewan and British Columbia to Mexico and California to South Dakota. Mountain snails feed on leaf litter, detritus, and microorganisms on solid surfaces (WGFD 2010a). There are no known occurrences of these species in the Project area; however, potentially suitable habitat may be present in the Project area.

Pale Milksnake (*Lampropeltis triangulum multistriata*) – State: Wyoming

Milksnakes are found in eastern and Midwestern North America, throughout Central America, and into northwest South America. The pale milksnake is the northernmost subspecies and is found in Montana, Wyoming, Colorado, Nebraska, and South Dakota west of the Missouri River to the Rocky Mountains. Milksnakes inhabit a wide variety of habitat types, but are primarily found in areas with a diverse grass-forb mixture with lower populations where woody vegetation dominated. Milksnakes feed on small vertebrates and eggs and kill by constricting their prey. The species is believed to be nocturnal (Smith and Stephens 2003). There are no known occurrences of pale milksnakes in the Project area; however, the northeastern end of the Project area lies within the known range of this subspecies (WGFD 2010a).

Pallid Bat (*Antrozous pallidus*) – State: Wyoming

Habitat for the pallid bat includes low desert, brushy terrain, coniferous forest and deciduous woodland. The species is found between 1,380 to 8,465 feet elevation in pinyon-juniper woodland, salt desert scrub, creosote, and sagebrush habitats (Bradley et al. 2006). The pallid bat hibernates in winter, but arouses periodically to forage and drink. Day roosts include rock outcrops, mines, caves, hollow trees, buildings, and bridges. Unlike most other North American bats that capture prey in flight, the pallid bat primarily captures large ground-dwelling prey such as scorpions, centipedes, long-horned beetles, grasshoppers, and Jerusalem crickets (Bat Conservation International 2009d; Bradley et al. 2006). There are no known occurrences of pallid bats in or near the Project area; however, the entire Project area lies within the range of the species. The pallid bat is likely to forage in the Project area.

Peregrine Falcon (*Falco peregrinus anatum*) – BLM: Wyoming, Colorado; USFS: Ashley, Manti-La Sal, and Uinta National Forests; State: Wyoming, Colorado

The peregrine falcon was listed as an endangered species in 1970 under the Endangered Species Conservation Act of 1969 but after a successful recovery due to restrictions on the use of organochlorine pesticides, the species was delisted in 1999 (FWS 1999b) (64 FR 46543). The peregrine falcon is a widely

distributed bird, occurring from the tundra to the tropics in a variety of different terrestrial biomes. The species most commonly occupies cliff habitats with open landscapes for foraging in proximity to water (coasts, lakes, rivers, etc.), but also occurs in artificial habitats such as towers, buildings, and urban settings (White et al. 2002). The species feeds on other birds and is known to breed, forage, and migrate throughout the Project area.

Pill Clams (combined account) – State: Wyoming

Pill clams are mollusks found in almost all Wyoming waters. These clams inhabit fine substrates in cold to warm water that ranges from flowing to stagnant and even temporary. They can be found at elevations from lowlands to more than 9,600 feet (2,900 meters) (WGFD 2010a). There are no known occurrences of the species in the Project area; however, given the omnipresence of these clams in Wyoming, potentially suitable habitat is likely present in the Project area.

Pinyon Mouse (*Peromyscus truei*) – State: Wyoming

The pinyon mouse distribution ranges from central Oregon, east to eastern Colorado and the panhandle of Texas, and south to southern Mexico. The pinyon mouse is considered rare in Wyoming as it likely limited to suitable habitat along Flaming Gorge Reservoir and isolated mesas of southern Sweetwater County, Wyoming. The species occurs in stands of juniper grasslands and shrub-steppe where vegetation is not dense, often nesting in hollow junipers or rock crevices on rocky slopes. A portion of the Project area lies in the predicted pinyon mouse range in southwestern Wyoming, northwestern Colorado, and northeastern Utah (WGFD 2010a). The species is likely to breed and forage in suitable habitat in the Project area.

Plain Pocketbook (*Lampsilis cardium*) – State: Wyoming

The plain pocketbook inhabits river drainages including the Mississippi River drainage, St. Lawrence River, and Great Lakes region in the United States (WGFD 2010a). The species is not found in the Project area, but inhabits the Platte River system that may be affected from drawdown of water from the Platte River watershed as a result of project-related water usage.

Plains Black-headed Snake (*Tantilla nigriceps*) – State: Wyoming

The Plains black-headed snake is found from southeastern Wyoming to central Durango, Mexico, and from Arizona to east-central Texas. The species inhabits plains and desert grassland, shrubland, and woodlands where it feed on invertebrates (Stebbins 2003). There are no known occurrences of the Plains black-headed snake in the Project area and the species was only recently discovered in Wyoming (WGFD 2010a). Portions of the Project area cross the potential range of the species in Wyoming (WGFD 2010a). The Plains black-headed snake may occur in the Project area.

Plains Orangethroat Darter (*Etheostoma spectabile*) – State: Wyoming, Colorado

The Plains orangethroat darter inhabits riverine systems from central Texas to southern Wisconsin and Michigan with a western extent to eastern Wyoming. The species is not found in the Project area, but inhabits the Platte River system that may be affected from drawdown of water from the Platte River watershed as a result of project-related water usage.

Plains Topminnow (*Fundulus sciadicus*) – State: Wyoming

The Plains topminnow inhabits river systems in Nebraska, South Dakota, and eastern Wyoming and Colorado (Rahel and Thel 2004). The species is not found in the Project area but inhabits the Platte River

system that may be affected from drawdown of water from the Platte River watershed as a result of project-related water usage.

Pond Snails (combined account) – State: Wyoming

Pond snails (genus *Stagnicola*) are air-breathing freshwater snails found throughout northern North America. These snails feed on algae, microbes, fungi, and detritus on surfaces such as logs macrophytes, rocks, and other substrates. Pond snails inhabit ponds or slow-moving streams (WGFD 2010a). There are no known occurrences of these species in the Project area; however, potentially suitable habitat may be present in the Project area.

Pygmy Nuthatch (*Sitta pygmaea*) – State: Wyoming

The pygmy nuthatch occurs in disjunct populations found throughout western North America. The pygmy nuthatch inhabits ponderosa and similar pine habitats, which results in the patchy distribution of these birds. The species primarily feeds on insects such as beetles, wasps, ants, true bugs, and caterpillars (Kingery and Ghalambor 2001). There are no known occurrences of pygmy nuthatch in the Project area; however, the Project area is within the known range of the species and the pygmy nuthatch may be present where suitable habitat is located.

Pygmy Rabbit (*Brachylagus idahoensis*) – BLM: Wyoming, Utah; State: Wyoming, Utah

The pygmy rabbit is patchily distributed throughout the Great Basin and adjacent Intermountain areas including Utah, Wyoming, and Colorado. The species is restricted to areas having dense, tall stands of sagebrush and soil characteristics conducive to burrowing. The FWS has reviewed a petition to list the species range-wide, but found that listing of the pygmy rabbit was not warranted (75 FR 60516-60561). Pygmy rabbits are dependent on sagebrush, which composes up to 99 percent of its winter diet (WGFD 2010a). Because of this dependence, pygmy rabbits are susceptible to fragmentation and degradation of sagebrush habitats due to fire, agriculture, development, grazing, and other human land uses (UDWR 2011a). Alternative routes are within the known range of the species and contain suitable habitat. In Wyoming, the species is likely to occur in the Project area in Carbon and Sweetwater counties. Pygmy rabbits have recently been identified in Moffat County in Colorado and may exist in sagebrush habitats crossed by the Project in other counties in the state as well (Estes-Zumpf and Rachlow 2009). Pygmy rabbits are not known to inhabit the Project area in Utah (Bosworth 2003).

Redhead (*Aythya americana*) – State: Wyoming

The redhead is found throughout most of the United States and Mexico as well as portions of Canada and Alaska. This duck inhabits almost any type of wetland from small, seasonal wetlands to larger semi-permanent wetlands. Redheads feed on vegetative parts and tubers of submerged aquatic plants, muskgrass (*Chara* spp.), and aquatic invertebrates (Woodin and Michot 2002). The Project is in the species' range and redheads are likely to occur throughout the Project area where wetlands are present.

Ringed Crayfish (*Orconectes neglectus*) – State: Wyoming

The ringed crayfish inhabits river drainages from Nebraska to Oklahoma and Missouri to Wyoming (WGFD 2010a). The species is not found in the Project area, but inhabits the Platte River system that may be affected from drawdown of water from the Platte River watershed as a result of project-related water usage.

River Otter (*Lontra canadensis*) – State: Wyoming, Colorado

The river otter occurs throughout the United States and Canada. The species is primarily present in states bordering the Great Lakes, Atlantic Ocean and the Gulf of Mexico, and the forested regions of the Pacific coast in North America. Bog lakes with banked shores containing semi-aquatic mammal burrows and lakes with beaver lodges are typical river otter habitat. The otter usually avoids water systems with gradually sloping shorelines of sand or gravel, residing more commonly in lakes, streams, and aquatic areas in cottonwood riparian, riparian shrub, willow, and marsh-swamp land habitat. The river otter occurs in river systems crossed by or near the Project area including the Green, North Platte, Yampa, and Colorado river systems (Boyle 2006) The species appears to be recolonizing its former range in Wyoming (WGFD 2010a). River otter occurrences have also been noted near Flaming Gorge in the Project area.

Rocky Mountain Bighorn Sheep (*Ovis canadensis canadensis*) – USFS: Ashley and Uinta National Forests; State: Wyoming

The Rocky Mountain bighorn sheep distribution ranges from southwestern Canada, south through the Rocky Mountains, Sierra Nevada, and desert mountains of the southwestern United States to Baja California and the northwestern mainland of Mexico. A portion of the Project area lies in the range of the Rocky Mountain bighorn sheep in west central Wyoming (Beecham et al. 2007). The species is likely to breed and forage in suitable habitat in the Project area. Refer to Section 3.2.7.4 for more detailed information about Rocky Mountain bighorn sheep in the Project area.

Roundtail Chub (*Gila robusta*) – BLM: Wyoming, Colorado, Utah; State: Wyoming, Colorado, Utah

The roundtail chub is endemic to rivers and streams in the Colorado River drainage (Bosworth 2003). The species is threatened by fragmentation and loss of habitat and competition and predation by nonnative species. Roundtail chub currently occupy 45 percent of their historic range in the Colorado River Basin (WGFD 2010a). Current known distribution of the roundtail chub includes the Little Snake (Carbon County) and Green (Sweetwater County) River drainages in Wyoming (WGFD 2005c), the Little Snake and Green (Moffat County) and Colorado (Mesa County) River drainages in Colorado; and the Colorado River Drainage including the Colorado (Grand County), Green (Uintah, Emery, and Grand counties), and San Rafael (Emery County) rivers in Utah (UDWR 1998). Alternative routes are in or cross the known range of the roundtail chub in Wyoming, Colorado, and Utah. The species is likely to be present in the Project area. One known occurrence is crossed by Link U400 where it crosses the White River.

Sage Sparrow (*Amphispiza belli*) – BLM: Wyoming; State: Wyoming

The sage sparrow prefers semi-open habitats with evenly spaced shrubs that are less than 6.5 feet high (Martin and Carlson 1998). The sage sparrow is typically considered a big sagebrush (*Artemisia tridentata*) obligate inhabiting pure stands as well as stands interspersed with bitterbrush, saltbush, shadscale, rabbitbrush, or greasewood. It is rarely found in mixed sagebrush-juniper (*Juniperus* spp.) except where it is adjacent to shrub-steppe habitat (Martin and Carlson 1998). Evidence suggests sage sparrows abandon cheatgrass-dominated areas and areas where sagebrush has been removed (Martin and Carlson 1998). The sage sparrow is found throughout the Project area during the breeding season (Beason et al. 2008; Beason et al. 2005; Cerovski et al. 2004). The species is considered a common summer resident in Wyoming (WGFD 2010a). The species winters between central California, east to central New Mexico, and south to northwestern Mexico (WGFD 2010a). It is an uncommon permanent resident statewide and a common winter resident in southern Utah (Parrish et al. 2002). There are numerous known occurrences of the sage sparrow in the Project area in all three states and the species is known to breed and forage in the Project area.

Sage Thrasher (*Oreoscoptes montanus*) – BLM: Wyoming; State: Wyoming

The sage thrasher is a sagebrush obligate (Baker et al. 1976); however, the species is also noted to occur in black greasewood (*Sarcobatus vermiculatus*) and bitterbrush (*Purshia tridentata*) habitats (Reynolds et al. 1999). The sage thrasher is found throughout Wyoming, Colorado, and Utah in appropriate habitat during the breeding season (Cerovski et al. 2001). The species winters from central California, east to central Texas and south to central Mexico. The entire Project area lies in the breeding range of the species and suitable habitat is present. The species has been observed near alternative routes in Wyoming, particularly along Link W108. The sage thrasher is known to breed and forage in the Project area.

Short-eared Owl (*Asio flammeus*) – BLM: Utah; State: Wyoming, Utah

Short-eared owls can be found in all open environments in North America, especially in lowland areas where there is a higher density of low vegetation and rodents. They occur in native grasslands, extensive grassy areas of broad lowland floodplains, marshes and wet hummocks, and agricultural areas. The species also frequent areas intermixed with brush and woodland, provided there is ample open grassland to hunt. Short-eared owls tend to be found in the densest stands of grass (Glinski 1998). They nest on the ground, sometimes in small colonies (Terres 1980). Short-eared owls eat mainly rodents, especially meadow mice, but also shrews, cotton rats, rabbits, pocket gophers, and bats. They also eat insects such as grasshoppers, June beetles, and cutworms in addition to small birds. The Project area is in the known range of these species and suitable breeding and foraging habitats are present. The short-eared owl is likely to breed and forage near alternative routes in Wyoming, Colorado, and Utah.

Smooth Greensnake (*Opheodrys vernalis*) – State: Wyoming, Utah

The smooth greensnake inhabits prairies, meadows, marshes, stream edges, and grassy upland areas. The species is rarely seen far from riparian areas (WGFD 2010a). In Utah, the smooth greensnake occurs in scattered localities in the mountains of central and eastern Utah (Bosworth 2003). The Project area is in the known range of the smooth greensnake in Colorado, Utah, and Wyoming (Redder et al. 2006). Populations of the species in the Project area are geographically isolated from larger populations in the eastern United States (Redder et al. 2006). Suitable habitat for the smooth greensnake occurs in the Project area in Utah and Colorado, and the species has been observed in the Red Narrows along Link U460 between the Uinta and Manti-La Sal National Forests. The smooth greensnake is known to occur in the Project area.

Snowy Egret (*Egretta thula*) – State: Wyoming

The snowy egret is primarily found along the coastal regions of the United States and throughout Mexico. However, there is an area of suitable breeding habitat found in northern Nevada and Utah into southwestern Wyoming and a disjunct area in southeast Wyoming. In these interior areas, the species tends to inhabit willows along large rivers, reservoirs, grassy marshes, and wet meadows. The species primarily feeds on invertebrates, but will also feed on fish, frogs, toads, snakes, and lizards (Parsons and Master 2000). No known occurrences of snowy egret are in the Project area; however, the species may be found breeding or foraging along waterways in the northern portion of the Project.

Southern Bonneville Springsnail (*Pyrgulopsis transversa*) – State: Utah

The southern Bonneville springsnail is a Utah endemic that is known to currently occur in six freshwater springs in central Utah, including four localities in Tooele County and one each in Utah County and Sanpete County. The species is found in aquatic habitats produced by springs in a wide elevation range from 5,830 to 6,740 feet (UDWR 2011a). One known Southern Bonneville springsnail population exists in the Project area in Thistle Creek along U.S. Highway 89 south of Thistle, Utah (Link U625).

Southern Leatherside Chub (*Lepidomeda aliciae*) – BLM: Utah; USFS: Manti-La Sal and Uinta National Forests; State: Utah

The southern leatherside chub in one of two taxa formerly known as leatherside chub that was recently split into two species based on genetic differences (Johnson et al. 2004). The southern leatherside chub is a small minnow native to streams and rivers of the southeastern portion of the Bonneville Basin. Observations of introduced leatherside chub populations have been found in the Strawberry, Green, and Freemont rivers in the Upper Colorado River Basin (UDWR 2010b). In Utah, the current known distribution includes Utah Lake and the Sevier River drainage (UDWR 2010b). Alternative routes are in the known range of the southern leatherside chub in Utah and contain suitable habitat. The species is known to occur in the Project area.

Spotted Bat (*Euderma maculatum*) – BLM: Wyoming, Utah; USFS: Ashley, Manti-La Sal, and Uinta National Forests; State: Wyoming, Utah

The spotted bat roosts in crevices on cliff walls and forages in open grassland, desert shrub, sagebrush, and mountain meadow communities (Bosworth 2003). The habitat is patchy and depends on the availability of cliff roosting habitat. It does not appear to migrate, but hibernates locally during winters (Bradley et al. 2006). The spotted bat is widely distributed throughout the Project area. The Project area is in the range of the species and contains suitable habitat; the spotted bat is likely to forage near alternative routes in Wyoming, Colorado, and Utah. All three national forests contain suitable habitat for the species.

Stonecat (*Noturus flavus*) – State: Colorado

The stonecat inhabits riverine systems throughout much of the northern United States from Montana and Wyoming east to Vermont (Florida Museum of Natural History 2012). The species is not found in the Project area, but inhabits the Platte River system that may be affected from drawdown of water from the Platte River watershed as a result of project-related water usage.

Suckermouth Minnow (*Phenacobius mirabilis*) – State: Wyoming, Colorado

The suckermouth minnow inhabits river drainages throughout the Mississippi River Basin from Ohio to Wyoming in isolated populations also present in the Gulf Coast drainage (WGFD 2010a). The species is not found in the Project area, but inhabits the Platte River system that may be affected from drawdown of water from the Platte River watershed as a result of project-related water usage.

Swainson's Hawk (*Buteo swainsoni*) – State: Wyoming

Swainson's hawk is widely distributed in the summer in the western United States. It is generally found in savannas, prairies, deserts, open pine-oak woodlands, and agricultural areas (Ehrlich et al. 1988). Grass-lined nests of large sticks and twigs are usually built in large trees, but may occasionally be located on cliffs (Ehrlich et al. 1988). Swainson's hawks feed on small mammals, snakes, lizards, and large insects (Ehrlich et al. 1988). At least one threat to the species is the shooting of birds perched along roadsides, but they also are susceptible to pesticides on their wintering grounds in Argentina (Ehrlich et al. 1992; Glinski 1998). The entire Project area lies in the breeding range for the species. There are two known nest sites near alternative routes in Utah. One is in Grand Valley along Link U490 and the other is between Mona and Nephi along Link U650. The Swainson's hawk is known to breed and forage in the Project area in Colorado, Utah, and Wyoming.

Three-toed Woodpecker (*Picoides dorsalis*) – BLM: Utah; USFS: Ashley, Manti-La Sal, and Uinta National Forests; State: Utah, Wyoming

The three-toed woodpecker inhabits boreal and montane coniferous forests, generally above 8,000 feet (2,400 meters) (Parrish et al. 2002). Typical nesting trees include alpine fir, Engelmann spruce, blue spruce, and white fir; wintering habitat also includes aspen forest (UDWR 1998). Three-toed woodpeckers are closely associated with infestations of spruce beetles (*Dendroctonus rufipennis*) and other scolytid beetles. This food source is particularly abundant after fires because it attacks trees that have been weakened or killed. Following the increased food supply, three-toed woodpeckers can be common at burn sites (Murphy and Lehnausen 1998). The three-toed woodpecker nests in the trunks of coniferous and deciduous snags and trees and shows a preference for trees with heartrot (Leonard 2001). It is primarily a resident throughout its breeding range, but often migrates elevationally throughout the year. The species can be found in Wyoming, Colorado, and Utah; however, it is only present in the Project area in Wyoming and Utah. In Wyoming, the species is an uncommon year-round resident of coniferous forests (Cerovski et al. 2001). In Utah, the three-toed woodpecker is a permanent resident of the high-elevation plateaus in the south-central portion of the state, including Manti-La Sal National Forest (Bosworth 2003). The species is a MIS on the Uinta National Forest. Much of the Project area lies in the known range of the species and the American three-toed woodpecker is likely to breed and forage in the Project area. One known occurrence is crossed by Link U600 along Utah Highway 31 in Cottonwood Canyon east of Fairview.

Townsend's Big-eared Bat (*Corynorhinus townsendii*) – BLM: Wyoming, Colorado, Utah; USFS: Ashley, Manti-La Sal, and Uinta National Forests; State: Wyoming, Colorado, Utah

The Townsend's big-eared bat is a relatively common species that roosts in caves and abandoned mines and forages in sagebrush, pinyon-juniper, mountain shrub, and mixed conifer communities. It is associated highly with the availability of caves and mines. The Townsend's big-eared bat does not appear to migrate through much of its range, but hibernates locally during winters (Oliver 2000). It is widely distributed throughout the Project area. Alternative routes are in the range of the species and contain suitable habitat. Townsend's big-eared bat is likely to forage in portions of the Project area in Wyoming, Colorado, and Utah.

Trumpeter Swan (*Cygnus buccinator*) – BLM: Wyoming; State: Wyoming

The trumpeter swan is the largest native North American waterfowl. Breeding habitat includes freshwater marshes, ponds, lakes, and occasionally rivers (Hansen et al. 1971). Nests are typically built in emergent vegetation, with surrounding water less than 36 inches deep, but also are found on muskrat structures or house islands with low human disturbance. Nests require approximately 330 feet of open water for takeoff and proximity to large invertebrate populations. Most flocks of trumpeter swans are year-round residents, only migrating short distances to ice-free waters (Mitchell 2010). The trumpeter swan is primarily found in western Canada and Alaska, but localized populations occur throughout the Intermountain and Rocky Mountain regions, including Wyoming. The Project area is in the known range of the trumpeter swan and potential habitat for the species occurs throughout the Project area. However, trumpeter swans are not known to occur in or in the vicinity of alternative routes. Transient trumpeter swans may occur in the Project area.

Vagrant Shrew (*Sorex vagrans*) –State: Wyoming

The vagrant shrew occurs from southern British Columbia and Alberta south to central Nevada with an isolated population in central Mexico. The species is considered rare in Wyoming because populations are limited in numbers due to dependence on vulnerable riparian habitat and ongoing loss of habitat. The vagrant shrew prefers areas with moist soil, leaf litter accumulation, and/or rotting logs in a variety of

habitats including riparian shrub, meadow grassland, bog, and conifer forest. A portion of the Project area lies in the predicted vagrant shrew range in southwestern Wyoming (WGFD 2010a).

Virginia Rail (*Rallus limicola*) – State: Wyoming

The Virginia rail is found throughout much of the United States and northern Mexico, excluding the interior southeastern United States. The species breed primarily in freshwater wetlands but may use salt marshes as well. Typically habitat contains shallow water with emergent cover and substrate with a high invertebrate abundance. Virginia rails' primarily feed on small invertebrates and a variety of aquatic plants and seeds of emergent plants (Conway 1995). There are no known occurrences of Virginia rail located in the Project area; however, the entire Project area is in the known range of the species. The Virginia rail is likely to breed and forage in suitable wetland habitats in the Project area.

Western Red Bat (*Lasiurus blossevillii*) – BLM: Utah; State: Utah

The western red bat roosts in trees and foliage in low elevation, riparian cottonwood forests. The species is migratory and spends winters outside of the Project area. In Utah, historical records indicate the presence of the species in Washington County, but none have been observed since the 1950s, which is believed to correlate with the replacement of cottonwoods with tamarisk (*Tamarix* spp.). The western red bat is very rare in Utah, but is known to occur in Washington, Carbon, and Utah counties (Bosworth 2003). Some alternative routes are in the summer range of the species in Utah and contain suitable habitat. The western red bat is very rare, but could potentially forage near alternative routes in Utah.

Western Scrub Jay (*Aphelocoma californica*) – State: Wyoming

The western scrub jay is found throughout the Intermountain west, much of California, and parts of Mexico and Texas. As its name implies, the western scrub jay inhabits scrub habitat such as oak, pinyon-juniper, brush, and chaparral as well as orchards and riparian woodland. Western scrub jays are omnivorous feeding on a mix of arthropods, fruit, and seeds depending on the time of year (Curry et al. 2002). The Project area is in the known range of the Western scrub jay and the species is likely to breed and forage in suitable habitats in the Project area.

Western Small-footed Myotis (*Myotis ciliolabrum*) – State: Wyoming

The western small-footed myotis uses a variety of habitats, from desert scrub, grassland, and sagebrush, to pinyon-juniper woodland, pine-fir forests, and urban and agricultural areas. The species hibernates during the colder months, either individually or in colonies. As with many other bats, the western small-footed myotis roosts in caves, mines, and trees. It forages in open areas, searching for small moths, flies, ants, and beetles (Bradley et al. 2006). The range of the western small-footed myotis extends from western Canada, through the western United States, and into central Mexico (Bat Conservation International 2009e). There are no known occurrences of western small-footed myotis in or near the Project area; however, the entire Project lies in the range of the species. Western small-footed myotis are likely to forage near alternative routes.

Western Snowy Plover (*Charadrius alexandrinus nivosus*) – BLM: Colorado, Utah; State: Colorado

Inland western snowy plovers breed on flat, unbroken, barren to sparsely vegetated ground at alkaline/saline lakes, reservoirs, and ponds; riverine sand bars; and occasionally at manmade structures such as sewage plants, salt-evaporators, and agricultural waste-water ponds. The species winters along the Pacific coast and Gulf of California (Page et al. 1995). Nests are generally located near a conspicuous feature (Page et al. 1985), kelp, driftwood, clam shell, cow dropping, or tumbleweed on a barren

landscape. Nests are simple scraped depressions on dry ground and lined with small debris located (Page et al. 1995) within 500 feet of water (Beidleman 2000). Though the snowy plover is present in Wyoming, Colorado, and Utah, in the Project area, the species is only documented from the Flaming Gorge area of Wyoming. There is suitable habitat available throughout the Utah portion of the Project area and migrants may occasionally pass through alternative routes.

Western Spiny Softshell (*Apalone spinifera hartwegi*) – State: Wyoming

The western spiny softshell is a subspecies of the spiny softshell turtles that are found throughout much of the eastern and central United States. This subspecies is found west of the Mississippi River to Montana and south to Oklahoma. Spiny softshell turtle inhabit rivers with quiet water and a bottom of mud, sand, or gravel. They also can be found in ponds, canals, and irrigation ditches with permanent water (Stebbins 2003). There are no known occurrences of the western spiny softshell in the Project area; however, the extreme northeastern end of the Project area lies in the predicted range of the species according to the Wyoming State Wildlife Action Plan (WGFD 2010a). The Western spiny softshell may occur in the Project area in suitable aquatic habitats in Carbon County, Wyoming.

White-faced Ibis (*Plegadis chihi*) – BLM: Wyoming, Colorado; State: Wyoming

Great Basin populations of white-faced ibis typically nest in stands of hardstem bulrush (*Scirpus acutus*), Olney's bulrush (*S. olneyi*), and alkali bulrush (*S. paludosus*). Colorado populations are found in cattail and giant burreed (*Sparganium eurycarpum*). Foraging areas include adjacent flooded wetlands with short emergent plants (sedges, spikerushes, saltgrass, and greasewood) (Ryder and Manry 1994). The white-faced ibis also has been observed feeding in nearby irrigated crops, particularly alfalfa, in the Great Basin Valley (Bray and Klebenow 1988). The white-faced ibis winters in the southern United States into Central and South America (UDWR 2000). In Wyoming, Colorado, and Utah, the species is locally distributed and moves frequently in response drought and rain. Utah's Great Salt Lake is believed to be the largest breeding colony in the world. In the Project area, breeding has been confirmed in Carbon County, Wyoming (Cerovski et al. 2004); important areas in Colorado during migration include Browns Park National Wildlife Refuge (Little Snake BLM Field Office) and Six and Fifty Reservoir near Mack (BLM Grand Junction Field Office) and potential habitat is present throughout Utah (UDWR 2000). White-faced ibis may occur in the Project area as incidental migrants, but are not likely to breed in the Project area.

White-tailed Prairie Dog (*Cynomys leucurus*) – BLM: Wyoming, Colorado, Utah; State: Utah

The white-tailed prairie dog occurs from south central Montana south to northeastern Utah and western Colorado in arid grasslands and shrub/grassland habitats with less than 12 to 15 percent slopes. The species is found in intermountain valleys, benches, and plateaus with diverse grass and forb cover (WGFD 2005b). White-tailed prairie dog populations are highly dynamic; however, abundance has greatly decreased since information has been recorded, likely due to changes in wildfire frequency, resource extraction, grazing, disease, predation, and fluctuation in availability of forage (Keinath 2004). Large complexes of white-tailed prairie dogs in Wyoming and northwest Colorado account for between 50 and 75 percent of all white-tailed prairie dogs (Keinath 2004). A large portion of the Project area east of the Wasatch Mountains is in the range of the species. Numerous prairie dog colonies are near alternative routes throughout Utah, Wyoming, and Colorado.

Willow Flycatcher (*Empidonax traillii*) – State: Wyoming

Willow flycatchers breed throughout much of the northern and southwestern United States. There are four or five subspecies that are generally accepted. The southwestern willow flycatcher (*Empidonax traillii extimus*) is discussed in Section J.6.2.1 as it is listed as endangered under the ESA. Willow flycatchers

inhabit moist shrubby areas, typically with standing or running water. They primarily feed on insects through aerial capture by hawking or hover-gleaning (Sedgwick 2000). The majority of the Project area lies in the breeding range of the willow flycatcher; however, no known occurrences are in the Project area. The willow flycatcher may breed and forage in suitable habitats in the Project area.

Wood Frog (*Rana sylvatica*) – State: Wyoming, Colorado

Wood frogs are found from Alaska to Nova Scotia and as far south as Georgia and Alabama, but inhabit very little of the western United States. Disjunct populations are found in southern Wyoming in the Medicine Bow Mountains (Carbon and Albany counties) and in the Bighorn Mountains in northern Wyoming west of Sheridan. Wood frogs inhabit damp and shady woods and forests near clear streams and leafy pools. In colder climates, they may inhabit ponds in open grassy areas bordered by thickets of willow and aspen (Stebbins 2003). There are no known occurrences in the Project area; however, the Project area (Link W18) skirts the edge of the predicted range of the population in the Medicine Bow Mountains in Wyoming (WGFD 2010a). The wood frog may occur in suitable habitats in the Project area.

Wyoming Pocket Gopher (*Thomomys clusius*) – BLM: Wyoming; State: Wyoming

The Wyoming pocket gopher is primarily solitary with limited distribution. Abundance and population trends of Wyoming pocket gopher populations are unknown due to limited data. Little is known about the Wyoming pocket gopher, but habitat appears to be dry, gravelly, shallow-soil ridge tops in greasewood communities. The species has been found on edges of eroding washes. Wyoming pocket gopher typically occurs on sites with 50 to 80 percent bare ground, little to no grass or litter cover, and where Wyoming big sagebrush is absent (WGFD 2010a). It is highly fossorial, living in underground burrow systems and tunnels (Keinath and Beauvais 2006). It is the only mammal that occurs exclusively in Wyoming where it is known from southeastern Sweetwater County and southwestern Carbon County (WGFD 2010a). Population integrity is directly linked to habitat quality, and local populations potentially are sensitive to habitat disturbance. Diet includes roots, tubers, and surface vegetation, and the species is active throughout the year. Pocket gophers are ecologically important as prey items and influence soils, microtopography, habitat heterogeneity, and plant species diversity (NatureServe 2012). Alternative routes are in the known range of the Wyoming pocket gopher and contain suitable habitat in Sweetwater and Carbon counties, Wyoming. The Wyoming pocket gopher is likely to occur near alternative routes.

J.6.2.3 U.S. Forest Service Management Indicator Species

This section includes species accounts for USFS MIS that are not USFS sensitive or assigned another status by federal agencies or states and were carried forward for detailed analysis. Species accounts for USFS MIS that are also USFS sensitive species or assigned another status by federal agencies or states are included in Sections J.6.2.1 and J.6.2.2.

American Beaver (*Castor canadensis*) – USFS: Uinta National Forest

The American beaver's distribution extends throughout North America except the arctic tundra, peninsular Florida, and much of the desert area of the Southwest, including parts of the northern edge of Mexico. Beavers inhabit permanent water sources and prefer low gradient streams, ponds, and small mud-bottomed lakes with damnable outlets. They occur in artificial ponds, reservoirs, and canals where food is available. Deciduous tree and shrub communities are typical habitats for the American beaver (Anderson 2002). Given the wide distribution of American beaver they are likely to occur in the Project area.

Elk (*Cervus elaphus*) – USFS: Ashley and Manti-La Sal National Forests

Elk were historically widespread in Canada and the United States; now they are mostly restricted to the western states. Elk habitat use varies according to location, as they use areas such as alpine pastures, marshy meadows, river flats, and aspen parkland, as well as coniferous forests, brushy clear cuts or forest edges, and semi-desert. In mountainous regions, elk spend summers in alpine meadows and winters in valleys. On more level terrain, elk seek wooded hillsides in summers and open grasslands in winters (Senseman 2002). Refer to Section 3.2.7.4 for more detailed information about elk in the Project area.

Golden Eagle (*Aquila chrysaetos*) – USFS: Ashley and Manti-La Sal National Forests

Golden eagles are widely distributed in the western United States and can be found in a variety of habitats. For hunting, the species prefers open ground or low hills where visibility is good (Ehrlich et al. 1988; Glinski 1998). Golden eagles nest most commonly on cliffs but also are known to nest in trees and manmade structures such as telephone poles (Glinski 1998). Nests from previous years are frequently reused. The species form strong pair bonds, frequently remaining with the same mate for several years, if not life. The golden eagle feeds primarily on mammals, but also will feed on snakes, birds, and large insects when mammals are unavailable (Ehrlich et al. 1988; Glinski 1998; Terres 1980). The golden eagle is a year round resident of the Project area, and there are numerous known occurrences including nest sites near alternative routes.

Lincoln's Sparrow (*Melospiza lincolnii*) – USFS: Ashley National Forest

The Lincoln's sparrow is relatively common in the western United States with a breeding range from western and central Alaska across Canada through northern Saskatchewan to Labrador, south to southern California, southwestern United States, southern Alberta, central Saskatchewan, central Michigan, New England, and Nova Scotia. A non-breeding range exists in the southern United States and moves south regularly to Honduras, central Panama, and the West Indies. Terrestrial habitats of the Lincoln's sparrow include herbaceous grassland, old field, chaparral/shrubland, and conifer woodland. Bogs, wet meadows, riparian thickets, shrubby forest edge, marshes, brushy fields, and jack plain barrens are all suitable habitats mostly in northern and montane areas. Lincoln's sparrow nests are found on the ground in areas with concealing vegetation or in low shrubs (NatureServe 2011). Due to the wide distribution of the Lincoln's sparrow, it is likely to occur in the Project area.

Macroinvertebrates (aquatic) – USFS: Ashley and Manti-La Sal National Forests

The term macroinvertebrates encompasses a wide variety of benthic organisms. The group includes aquatic insects such as mayflies, caddis flies, daphnia, cyclops, and stoneflies; mollusks; and worms (Smith 2008). These species serve as food for much of the vertebrate life inhabiting the rivers and lakes of the national forests. Aquatic macroinvertebrates are considered an MIS for both the Ashley and Manti-La Sal National Forests. Macroinvertebrates inhabit all waterways that may be crossed by alternative routes.

Mule Deer (*Odocoileus hemionus*) – USFS: Ashley and Manti-La Sal National Forests

Mule deer occur across most of North America west of the 100 meridian from 23 to 60 degrees north. Mule deer occupy a variety of habitat types in mountains and lowlands including forests, woodlands, forest edges, shrublands, grasslands with shrubs, and residential areas. Regions with successional vegetation, near agricultural lands are preferred habitat. In winter, mule deer can be found on warmer slopes and areas with minimal snow accumulation (Andersen and Wallmo 1984). Refer to Section 3.2.7.4 for more detailed information about mule deer in the Project area.

Red-naped Sapsucker (*Sphyrapicus nuchalis*) – USFS: Ashley National Forest

As with other sapsuckers, the red-naped sapsucker drills parallel rows of holes (sap wells) into the phloem and xylem of conifers and quaking aspens (*Populus tremuloides*) (Walters et al. 2002). This small woodpecker is a keystone forest species; its abandoned nest holes are used by mountain bluebirds (*Sialia currucoides*), northern saw-whet owls (*Aegoliusacadicus*), and northern flying squirrels (*Glaucomys sabrinus*). A variety of insects and other bird species use its sap wells, either for the sap itself or to feed on the insects drawn to the sap (Floyd et al. 2007; Walters et al. 2002). The rufous hummingbird (*Selasphorus rufus*) is closely associated with the red-naped sapsucker, often nesting near the woodpecker's sap wells, a ready food source (Floyd et al. 2007). The red-naped sapsucker is an MIS for Ashley National Forest. No occurrences of the species are known in or in the vicinity of the Project area.

Song Sparrow (*Melospiza melodia*) – USFS: Ashley National Forest

The song sparrow has a vast breeding range extending throughout North America. Terrestrial habitats of the song sparrow include grassland, old field, shrubland, suburban and orchard, and woodlands; brushy, shrubby, and deep grassy areas along water systems and seacoasts; and marshes (cattail, bulrush, and salt) and are mostly in the northern and eastern portions of the song sparrow's range. Forest edge, bogs, brushy clearings, thickets, hedgerows, and gardens are all typical habitat type (Arcese et al. 2002). The song sparrow is likely to occur along waterways in the Project area.

Warbling Vireo (*Vireo gilvus*) – USFS: Ashley National Forest

The warbling vireo's distribution range extends from British Columbia across the vast majority of the United States excluding Georgia, Florida, and South Carolina, wintering from northern Mexico to Nicaragua. Terrestrial habitat of the warbling vireo includes hardwood forest, mixed forest, savanna, suburban and orchard areas, hardwood woodland, and mixed woodland. During migration periods, open deciduous and mixed deciduous-coniferous woodland, riparian forest and thickets, pine-oak association, orchards, and parks are suitable warbling vireo habitat. In winter, a wide variety of forest, woodland, and scrub habitats are utilized (Gardali and Ballard 2000). Given the wide and diverse habitat distribution of the warbling vireo, it is likely to occur in the Project area.

J.7 Seasonal Restrictions for Special Status Plants

Seasonal restrictions to protect special status plants and their pollinators are not typically identified in BLM RMPs or USFS LRMPs. However, the FWS Draft Energy Development Management Guidelines for *Sclerocactus wetlandicus* and *Sclerocactus brevispinus* Core Conservation Areas identifies the following seasonal restriction recommendation in Level 1 *Sclerocactus* Core Conservation Areas:

Ground-disturbing activities would occur outside of the flowering season, typically late April to mid-May, in *Sclerocactus* core habitat, as defined by the FWS, to avoid adverse impacts on *Sclerocactus* reproductive success related to fugitive dust and pollinator disturbance.

Any seasonal restrictions intended to reduce potential effects on plant species listed under the ESA would be consistent with the conservation measures developed during Section 7 consultation between BLM and FWS.

J.8 Seasonal Restrictions for Wildlife

Seasonal restrictions to protect wildlife are identified in BLM RMPs, USFS LRMPs, state wildlife management plans, and in agency guidelines relevant to the Project area and are described in Selective Mitigation Measure 12 (Section 3.2.7.4.3). Table J-12 summarizes relevant seasonal wildlife restrictions

from applicable plans, sometimes with overlapping jurisdiction, by combining the earliest and latest dates identified for each species by applicable agency plans in each state. These dates represent the maximum length that restrictions would be necessary to provide adequate protections to wildlife during sensitive periods and comply with applicable plans and management recommendations. Seasonal restrictions for nesting raptors (Tables J-13 to J-15) were adopted from statewide plans and BLM RMPs. The Rawlins RMP defines active raptor nests as any identified raptor nest site that could provide a nesting opportunity for a raptor. In Utah raptors are managed in accordance with Instruction Memorandum No. UT 2006-096 and the definition of active raptor nests includes both occupied and unoccupied nests as defined in Romin and Muck (2002):

> *Occupied Nests* are defined as those nests which are repaired or tended in the current year by a pair of raptors. Presence of raptors (adults, eggs, or young), evidence of nest repair or nest marking, freshly molted feathers or plucked down, or current years' mute remains (whitewash) suggest site occupancy. Additionally, all nest sites in a nesting territory are deemed occupied while raptors are demonstrating pair bonding activities and developing an affinity to a given area. If this culminates in an individual nest being selected for use by a breeding pair, then the other nests in the nesting territory will no longer be considered occupied for the current breeding season. A nest site remains occupied throughout the periods of initial courtship and pair bonding, egg laying, incubation, brooding, fledging, and post-fledging dependency of the young.
>
> *Unoccupied Nests* are defined as those nests not selected by raptors for use in the current year. Nests would also be considered unoccupied for the non-breeding period of the year. The exact point in time when a nest becomes unoccupied should be determined by a qualified wildlife biologist based upon a knowledge that the breeding season has advanced such that nesting is not expected. Inactivity at a nest site or territory does not necessarily indicate permanent abandonment.

Seasonal restrictions and survey requirements for migratory birds are described in Design Feature 6 and Design Feature 7 (Section 3.2.9.4).

TABLE J-12 SEASONAL RESTRICTIONS IN SENSITIVE HABITATS				
Agency	**Applicable Plan**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
Soils				
Bureau of Land Management (BLM)	Moab Field Office Resource Management Plan (RMP)	For slopes greater than 30 percent in the Bookcliffs	BLM approved ground-disturbing activities are not allowed from November 1 to April 30. This restriction includes heavy equipment traffic on existing roads associated with drilling operations.	**Exception**: An exception could be granted if the operator can provide a plan of development demonstrating that the proposed action would be properly designed and constructed to support the anticipated types and levels of use. Roads must be designed to meet BLM road standards for drainage control and surfaced to support heavy equipment and tractor trailers. Adjustments to the timing restriction could be considered by the Field Manager on a case-by-case basis, depending on current soil and weather conditions. **Modification**: None **Waiver**: None
BLM	Moab Field Office RMP	Saline soils in the Mancos Shale	No ground-disturbing activities are allowed during the period from December 1 to May 31. This restriction includes heavy equipment traffic on existing roads associated with drilling operations.	**Exception**: An exception could be granted if the operator can provide a plan of development demonstrating that the proposed action would be properly designed and constructed to support the anticipated types and levels of use. Roads must be designed to meet BLM road standards for drainage control and surfaced to support heavy equipment and tractor trailers. Adjustments to the timing restriction could be considered by the Field Manager on a case-by-case basis, depending on current soil and weather conditions. **Modification**: None **Waiver**: None
Special Status Plants				
Jones' Cycladenia				
BLM	Moab Field Office RMP	Within 300 feet of plants and suitable habitat	Preclude construction activities from May 15 through June 30 in occupied habitat.	None

TABLE J-12 SEASONAL RESTRICTIONS IN SENSITIVE HABITATS				
Agency	**Applicable Plan**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
Special Status Wildlife				
Colorado River Fishes				
BLM	Little Snake Field Office RMP	All new pipelines and other controlled-surface uses crossing any critical or occupied habitat of the Colorado River fishes	No work in the active river channel will take place between July 1 and September 30 to prevent adverse effects from sedimentation during spawning; also, no work will take place when larval fishes are drifting in the river channel.	None
Columbian Sharp-tailed Grouse				
BLM	Rawlins Field Office RMP	Within 0.25 mile of perimeter of occupied Colombian sharp-tailed grouse leks	Disruptive activities are prohibited between 6:00 p.m. and 9:00 a.m. from March 1 to May 20	Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the Authorized Officer.
BLM	Rawlins Field Office RMP	In suitable sharp-tailed grouse nesting and early brood-rearing habitat, and within 1 mile of the perimeter of a sharp-tailed grouse lek, or in identified sharp-tailed grouse nesting and early brood-rearing habitat	Avoid ground-disturbing and disruptive activities, geophysical surveys, and organized recreational activities (events) that require a special-use permit from March 1 to July 15.	Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the Authorized Officer.
BLM	Rawlins Field Office RMP	Delineated sharp-tailed grouse winter concentration areas	Ground-disturbing and disruptive activities are prohibited during the period of November 15 to March 14 for the protection of sharp-tailed grouse winter concentration areas.	Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the Authorized Officer.
BLM	Little Snake Field Office RMP	Within a 0.25 mile radius of a lek site, in mapped Colorado Parks and Wildlife habitat	Nesting habitat will be closed to ground-disturbing activities from March 1 to June 30. Crucial winter habitat will be closed from December 16 to March 15.	Exceptions will be granted according to criteria established in Appendix B of the RMP.

TABLE J-12 SEASONAL RESTRICTIONS IN SENSITIVE HABITATS				
Agency	**Applicable Plan**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
Sage-grouse				
BLM	Instruction Memorandum No. WY-2012-019	Sage-grouse nesting/early brood-rearing habitat in core areas	Surface disturbing and/or disruptive activities are prohibited from March 15 to June 30 to protect sage-grouse nesting and early brood-rearing habitat. Apply this restriction to all nesting and early brood-rearing habitats inside core areas regardless of distance from the lek. Where credible data support different time frames for this seasonal restriction, dates may be expanded by up to 14 days prior to or subsequent to the above dates.	Exceptions to lease stipulations, conditions of approval, and terms and conditions, etc. will continue to be considered on a case-by-case basis consistent with approved RMPs and other BLM policy and regulations as they relate to exceptions.
BLM	Instruction Memorandum No. WY-2012-019	Sage-grouse nesting/early brood-rearing habitat in connectivity areas	Surface disturbing and/or disruptive activities are prohibited from March 15 to June 30 to protect nesting and early brood-rearing habitats within 4 miles of the lek or lek perimeter of any occupied sage-grouse lek in identified connectivity areas. Where credible data support different time frames for this seasonal restriction, dates may be expanded by up to 14 days prior to or subsequent to the above dates.	Exceptions to lease stipulations, conditions of approval, and terms and conditions, etc. will continue to be considered on a case-by-case basis consistent with approved RMPs and other BLM policy and regulations as they relate to exceptions.
BLM	Instruction Memorandum No. WY-2012-019	Sage-grouse nesting/early brood-rearing habitat outside core or connectivity areas	Surface disturbing and/or disruptive activities are prohibited from March 15 to June 30 to protect sage-grouse nesting and early brood-rearing habitats within 2 miles of the lek or lek perimeter of any occupied lek located outside core or connectivity areas. Where credible data support different time frames for this seasonal restriction, dates may be expanded by up to 14 days prior to or subsequent to the above dates.	Exceptions to lease stipulations, conditions of approval, and terms and conditions, etc. will continue to be considered on a case-by-case basis consistent with approved RMPs and other BLM policy and regulations as they relate to exceptions.

TABLE J-12 SEASONAL RESTRICTIONS IN SENSITIVE HABITATS				
Agency	**Applicable Plan**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
BLM	Instruction Memorandum No. WY-2012-019	Sage-grouse late brood-rearing and winter concentration areas	Surface disturbing and/or disruptive activities in sage-grouse winter concentration areas are prohibited from December 1 to March 14 to protect core populations of sage-grouse that use these winter concentration habitats. While the bulk of winter and late brood-rearing habitat necessary to support core area populations is available in core population areas, it may be necessary to protect additional areas of winter concentration that are not located in the current core area boundaries. Appropriate seasonal timing restrictions and habitat protection measures must be considered and evaluated where winter concentration areas or important late brood-rearing areas are identified as supporting populations of greater sage-grouse that attend leks in core.	Exceptions to lease stipulations, conditions of approval, and terms and conditions, etc. will continue to be considered on a case-by-case basis consistent with approved RMPs and other BLM policy and regulations as they relate to exceptions.
State of Wyoming	Executive Order for Greater Sage-grouse in Wyoming, 2011	Outside of the 0.6 mile perimeter of a lek in core areas where breeding, nesting and early brood-rearing habitat is present; unsuitable habitat; winter concentration areas	Activity (Note: production and maintenance activity exempted) will be allowed from July to March 14 outside of the 0.6 mile perimeter of a lek in core areas where breeding, nesting and early brood-rearing habitat is present. In areas used solely as winter concentration areas, exploration and development activity will be allowed March 14 to December 1. Activities in unsuitable habitat also may be approved year-round (including March 15 to June 30) on a case-by-case basis (except in specific areas where credible data shows calendar deviation). Activities may be allowed during seasonal closure periods as determined on a case-by-case basis.	None

TABLE J-12 SEASONAL RESTRICTIONS IN SENSITIVE HABITATS				
Agency	**Applicable Plan**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
			While the bulk of winter habitat necessary to support core sage-grouse populations likely occurs inside Core Population Areas, seasonal stipulations (December 1 to March 14) should be considered in locations outside Core Population Areas where they have been identified as winter concentration areas necessary for supporting biologically significant numbers of sage-grouse nesting in Core Population Areas. All efforts should he made to minimize disturbance to mature sagebrush cover in identified winter concentration areas.	
State of Wyoming	Executive Order for Greater Sage-grouse in Wyoming, 2011	Outside 0.6 mile of the perimeter of occupied sage-grouse leks	New noise levels, at the perimeter of a lek, should not exceed 10 decibels above ambient noise (existing activity included) from 6:00 p.m. to 5:00 am. During the initiation of breeding (March 1 to May 15). Ambient noise levels should be determined by measurements taken at the perimeter of a lek at sunrise.	**Exceptions**: Any exceptions to these general or specific stipulations will be considered on a case by case basis and must show that the exception will not cause declines in sage-grouse populations.
State of Wyoming	Executive Order for Greater Sage-grouse in Wyoming, 2011	Within 4 miles of an occupied lek; unsuitable habitat.	Vegetation removal should be limited to the minimum disturbance required by the project. All topsoil stripping and vegetation removal in suitable habitat will occur between July 1 and March 14 in areas that are within 4 miles of an occupied lek. Initial disturbance in unsuitable habitat between March 15 and June 30 may be approved on a case-by-case basis.	**Exceptions**: Any exceptions to these general or specific stipulations will be considered on a case by case basis and must show that the exception will not cause declines in sage-grouse populations.

TABLE J-12 SEASONAL RESTRICTIONS IN SENSITIVE HABITATS				
Agency	**Applicable Plan**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
Colorado Division of Wildlife	Colorado Greater Sage-grouse Conservation Plan	Breeding habitat; summer-fall habitat; winter habitat	Avoid activities in breeding habitat (March-July), lek habitat (March to mid-May), nesting habitat (April to June), early brood-rearing habitat (mid-May to July), summer-fall habitat (July to September), and winter habitat (October to February)	None
Colorado Division of Wildlife	Colorado Greater Sage-grouse Conservation Plan	Lek habitat	Any activities associated with anthropogenic features, or any other bird-disturbing activities, should be limited between sunset and 2 hours after sunrise.	None
State of Utah	Conservation Plan for Greater Sage-grouse in Utah, 2013	Sage-grouse lek	Employ seasonal disturbance stipulations as follows: ▪ Implement time-of-day stipulations during the season when the lek is occupied (e.g., no activity from 2 hours before sunrise to 2 hours after sunrise). ▪ Avoid activities (i.e., construction, vehicle noise, etc.) that will disturb lek attendance or breeding from February 15 to May 15. The local Division of Wildlife Resources biologist should be consulted for time and distance determinations based on site-specific conditions.	None
State of Utah	Conservation Plan for Greater Sage-grouse in Utah, 2013	Nesting and brood-rearing area	Avoid activities (i.e., construction, vehicle noise, etc.) that will disturb nesting or brood-rearing from April 1 to August 15. The local Division of Wildlife Resources biologist should be consulted for time and distance determinations based on site-specific conditions.	None
State of Utah	Conservation Plan for Greater Sage-grouse in Utah, 2013	Winter habitat	Avoid activities (i.e., construction, vehicle noise, etc.) that will disturb wintering sage-grouse from November 15 to March 15. The local Division of Wildlife Resources biologist should be consulted for time and distance	None

TABLE J-12 SEASONAL RESTRICTIONS IN SENSITIVE HABITATS				
Agency	**Applicable Plan**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
			determinations based on site-specific conditions.	
BLM	Rawlins Field Office RMP	Within 0.25 mile of perimeter of occupied sage-grouse leks	Disruptive activities are prohibited between 6 p.m. and 9 a.m. from March 1 to May 20	Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the Authorized Officer.
BLM	Rawlins Field Office RMP	In suitable greater sage-grouse nesting and early brood-rearing habitat within 2 miles of the perimeter of an occupied greater sage-grouse lek, or in identified greater sage-grouse nesting and early brood-rearing habitat	Avoid ground-disturbing and disruptive activities, geophysical surveys, and organized recreational activities (events) that require a special-use permit from March 1 to July 15.	Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the Authorized Officer.
BLM	Rawlins Field Office RMP	Delineated greater sage-grouse winter concentration areas	Ground-disturbing and disruptive activities are prohibited during the period of November 15 to March 14 for the protection of greater sage-grouse winter concentration areas.	None
BLM	Little Snake Field Office RMP	Within a 4 mile radius of the perimeter of a lek	Avoidance areas for ground-disturbing activities between March 1 and June 30. The actual area to be avoided will be determined on a case-by-case basis, depending on applicable scientific research and site-specific analysis and in coordination with commodity users and other appropriate entities. The use of the following best management practices from the RMP will be encouraged for all ground-disturbing activities, and BLM may require implementation of some of these best management practices. Use of these best management practices becomes even more important once a disturbance affects 10 percent of the nesting habitat within a 4 mile	None

TABLE J-12 SEASONAL RESTRICTIONS IN SENSITIVE HABITATS				
Agency	**Applicable Plan**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
			radius of an active lek. As new best management practices are developed, they may be added to this list of best management practices or may replace some of those now listed. ▪ Habitat Reclamation: • Use early and effective reclamation techniques, including interim reclamation, to allow sage-grouse habitat to be re-established as soon as possible. This may require multiple reclamation efforts. • Use reclamation seed mixes, consisting of native bunchgrasses, forbs, and subspecies of big sagebrush, that are appropriate for the disturbed site and its potential.	
BLM	Little Snake Field Office RMP	Near active sage-grouse leks	Limit non-ground-disturbing activities during the breeding season, March 1 to May 1, to portions of the day after 9 a.m. and before 4 p.m.	None
BLM	Little Snake Field Office RMP	Crucial winter habitat	Closed from December 16 to March 15	None

TABLE J-12 SEASONAL RESTRICTIONS IN SENSITIVE HABITATS				
Agency	**Applicable Plan**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
BLM	White River Field Office RMP	Sage-grouse nesting habitat; within 2 miles of identified leks	This area encompasses suitable sage grouse nesting habitat associated with Nest Habitat individual leks. This stipulation will not take effect until direct and indirect impacts on suitable nesting cover exceeds 10 percent of the habitat available within 2 miles of identified leks. Further development, after this threshold has been exceeded, will not be allowed from April 15 through July 7. (Note: Development can occur until 10 percent of the habitat associated with a lek is affected, from then on, additional activity can occur from July 8 through April 14).	**Exception:** The Area Manager may grant an exception if an environmental analysis and consultation with the Colorado Division of Wildlife (CDOW) indicates that the proposed action could be conditioned so as not to affect nest attendance, egg/chick survival, or nesting success. An exception also could be granted if the Applicant, BLM, and CDOW negotiate compensation that would satisfactorily offset the anticipated losses of nesting habitat or nesting activities. Actions designed to enhance the long-term utility or availability of suitable nest habitat may be excepted. **Modification**: The Area Manager may modify the size of the timing limitation area if an environmental analysis indicates that the proposed action could be conditioned so as not to affect nest attendance, egg/chick survival, or nesting success. Timeframes may be modified if operations could be conditioned to allow a minimum of 70 percent of nesting attempts to progress through hatch. **Waiver**: This stipulation may be waived if CDOW determines that the described lands are incapable of serving the long-term requirements of sage grouse nesting habitat and that these ranges no longer warrant consideration as components of sage grouse nesting habitat.
BLM	White River Field Office RMP	Sage Grouse Crucial Winter Habitat	This area encompasses sagebrush habitats that are occupied by wintering concentrations of grouse, or represent the only habitats that remain available for use during periods of heavy snowpack. No development activity will be allowed between December 16 and March 1. The CDOW has indicated that these	Exception, modification, and waiver language will be developed in cooperation with the CDOW after the affected areas have been delineated.

TABLE J-12 SEASONAL RESTRICTIONS IN SENSITIVE HABITATS				
Agency	**Applicable Plan**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
			features exist on public lands in the White River Resource Area but have not yet delineated specific areas that will be subject to this timing restriction.	
BLM	Vernal Field Office RMP	Within 2 miles of active sage-grouse leks	No ground-disturbing activities will be allowed from March 1 through June 15.	None
BLM	Moab Field Office RMP	Within 2 miles of a lek	Allow no ground-disturbing activities in occupied nesting and brood-rearing habitat from March 15 to July 15	**Exception**: An exception may be granted by the Field Manager if the operator submits a plan that demonstrates that impacts from the proposed action can be adequately mitigated or it is determined the brooding/nesting habitat is not active. **Modification**: The Field Manager may modify the boundaries of the stipulation area if (1) portions of the area do not include brooding/nesting habitat, or (2) the brooding/nesting habitat has been completely abandoned or destroyed, or (3) occupied brooding/nesting habitat occurs outside the current defined area; as determined by the BLM. **Waiver**: A waiver may be granted if there is no active brooding/nesting habitat in the leasehold and it is determined the habitat has been completely abandoned or destroyed or occurs outside the current defined area, as determined by the BLM.

TABLE J-12 SEASONAL RESTRICTIONS IN SENSITIVE HABITATS				
Agency	**Applicable Plan**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
BLM	Moab Field Office RMP	In occupied winter habitat	Allow no ground-disturbing activities in occupied winter habitat from November 15 to March 14.	**Exception**: An exception may be granted by the Field Manager if the operator submits a plan that demonstrates that impacts from the proposed action can be adequately mitigated or it is determined the habitat is not occupied during the winter season. **Modification**: The Field Manager may modify the boundaries of the stipulation area if: ▪ portions of the area do not include winter habitat, or ▪ the brooding/nesting habitat has been completely abandoned or destroyed, or ▪ occupied winter activity occurs outside the current defined area; as determined by the BLM. **Waiver**: A waiver may be granted if the winter habitat in the leasehold has been completely abandoned or destroyed or occurs outside the current defined area, as determined by the BLM.
BLM	Price Field Office RMP	Within 2 miles of a known greater sage-grouse lek.	Allow no ground-disturbing or otherwise disruptive activities between March 15 to July 15	**Exception**: The Authorized Officer may grant an exception if an environmental analysis demonstrates that the action would not impair the function or utility of the habitat for nesting or early brood-rearing activities. **Modification**: Season may be adjusted depending on climatic and habitat conditions. Disturbance could occur if the activity were proposed to occur in the buffer, but would occur in non-sagebrush habitat, (i.e., the activity could be allowed if it was not in sage-grouse habitat and did not in some other way disturb nesting or brood-rearing activity). **Waiver**: This stipulation may be waived if, in

TABLE J-12 SEASONAL RESTRICTIONS IN SENSITIVE HABITATS				
Agency	**Applicable Plan**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
				cooperation with Utah Division of Wildlife Resources (UDWR), it is determined that the site has been permanently abandoned or unoccupied for a minimum of 5 years.
BLM	Price Field Office RMP	Sage-grouse wintering areas; crucial winter habitat	Closed seasonally between December 1 and March 14	**Exception**: Upon review and monitoring, the Authorized Officer may grant exceptions because of climatic and/or habitat conditions if certain criteria are met and if activities would not cause undue stress to wintering greater sage-grouse. **Modification**: Season may be adjusted depending on climatic and habitat conditions. **Waiver**: This stipulation may be waived if, in cooperation with the state wildlife agency, it is determined that the site has been permanently abandoned or unoccupied for a minimum of 5 years.
BLM	Salt Lake Field Office RMP	Within 0.5 mile of sage grouse strutting grounds (leks) and crucial sage grouse nesting habitat; in winter crucial habitat areas	BLM will protect from disturbing activities within 0.5 mile of sage grouse strutting grounds (leks) and crucial sage grouse nesting habitat between March 15 and June 15 each year, and in winter crucial habitat areas December 1 through March 1.	Specific exceptions may be granted by BLM if the proposed activity will not seriously disturb the wildlife habitat values being protected.
Southwestern Willow Flycatcher				
BLM	Moab Field Office RMP	In occupied southwestern willow flycatcher habitat.	Unavoidable ground-disturbing activities in occupied southwestern willow flycatcher habitat should only be conducted when preceded by current year survey, should only occur between August 16 and April 30 (i.e., the period when southwestern willow flycatcher are not likely to be breeding), and should be monitored to ensure that adverse impacts on southwestern willow flycatcher are minimized or avoided, and to document the success of project-specific	None

TABLE J-12 SEASONAL RESTRICTIONS IN SENSITIVE HABITATS				
Agency	**Applicable Plan**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
			mitigation/protection measures. As monitoring is relatively undefined, project-specific requirements must be identified.	
BLM	Moab Field Office RMP	Within 0.25 mile of suitable southwestern willow flycatcher habitat	Habitat disturbances (i.e., organized recreational activities requiring special-use permits, drilling activities, etc.) will be avoided within 0.25 mile of suitable southwestern willow flycatcher habitat from May 1 to August 15.	None
BLM	Richfield Field Office RMP	All ground-disturbing activities should be restricted within a 0.25-mile buffer from suitable riparian habitats and permanent surface disturbances should be avoided within 0.5 mile of suitable southwestern willow flycatcher habitat.	Unavoidable ground-disturbing activities in occupied southwestern willow flycatcher habitat should only be conducted when preceded by current year survey, should only occur between August 16 and April 30 (i.e., the period when southwestern willow flycatcher are not likely to be breeding), and should be monitored to ensure that adverse impacts on southwestern willow flycatcher are minimized or avoided, and to document the success of project-specific mitigation/protection measures. As monitoring is relatively undefined, project-specific requirements must be identified.	None
Mountain Plover				
BLM	Rawlins Field Office RMP	Potential mountain plover habitat	Ground-disturbing and disruptive activities (including reclamation activities) are not allowed during the reproductive period of April 10 to July 10 for the protection of breeding and nesting mountain plover.	Unless surveys consistent with the plover guidelines or other methods approved by the U.S. Fish and Wildlife Service find that no plovers are nesting in the area. Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the Authorized Officer.

TABLE J-12 SEASONAL RESTRICTIONS IN SENSITIVE HABITATS				
Agency	**Applicable Plan**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
BLM	Rawlins Field Office RMP	Within 0.5 mile of the identified mountain plover-occupied habitat	Traffic will be minimized and Speed limits will be posted at 25 miles per hour (mph) on resources roads and 35 mph on local roads during the brood-rearing period (June 1 to July 10).	Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the Authorized Officer.
BLM	Rawlins Field Office RMP	Identified mountain plover-occupied habitat	Traffic speed and traffic volume will be limited during nighttime hours from April 10 to July 10	Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the Authorized Officer.
BLM	Rawlins Field Office RMP	Identified mountain plover-occupied habitat	Work schedules and shift changes will be modified from June 1 to July 10 to avoid the periods of activity from a ½ hour before sunrise to 10:00 a.m. and from 5:00 p.m. to a ½ hour after sunset.	Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the Authorized Officer.
BLM	Little Snake Field Office RMP	Within 0.25 mile of all plover nest sites	Prohibit surface use from April 1 to July 15	The boundaries of the stipulated area may be modified if the Authorized Officer determines that portions of the area are not critical to the mountain plover.
Western Yellow-billed Cuckoo				
BLM	Rawlins Field Office RMP	Within 0.5 mile of identified habitat	Ground-disturbing and disruptive activities potentially disruptive to Western yellow-billed cuckoos are prohibited from April 15 to August 15 for the protection of nesting Western yellow-billed cuckoos.	Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the Authorized Officer.
BLM	Little Snake Field Office RMP	Current yellow-billed cuckoo habitat	Construction of roads, pipelines, and power lines through riparian habitat should not occur from June 1 through August 1.	None
Raptors[1]				
BLM	Moab Field Office RMP	Within spatial buffers (0.25 mile for burrowing owl and 0.5 mile for ferruginous hawk) of known nesting sites.	In habitat for raptor species, no surface disturbances or occupancy will be conducted during the breeding and nesting season (March 1 to August 31 for burrowing owl and March 1 to August 1 for ferruginous hawk).	**Exception**: An exception would be granted if protocol surveys determine that nesting sites, breeding territories, and winter roosting areas are not occupied.

TABLE J-12 SEASONAL RESTRICTIONS IN SENSITIVE HABITATS				
Agency	**Applicable Plan**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
UDWR	Recommended stipulations	Within 0.5 mile of known ferruginous hawk nesting sites.	Restrictions on activities are recommended from February 1 to July 1 (UDWR 2013b).	
Migratory Birds				
BLM	Price Field Office RMP	High-value breeding habitat	Migratory bird nesting areas would be closed seasonally. Birds designated as BLM Special Status Species would have the highest priority.	**Exception**: Upon review and monitoring, the Authorized Officer may grant exceptions because of climatic and/or habitat conditions if activities would not cause undue stress to migratory bird populations. **Modification**: Season may be adjusted depending on climatic and range conditions. Distance may be adjusted if natural features provide adequate visual screening. **Waiver**: None
Big Game - General				
BLM	Rawlins Field Office RMP	Big game (i.e., elk, moose, deer, antelope. And bighorn sheep) crucial winter range	Ground-disturbing and disruptive activities in big game crucial winter range will not be allowed during the period of November 15 to April 30.	Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the Authorized Officer.
BLM	Rawlins Field Office RMP	Big game (i.e., elk, bighorn) parturition areas	Ground-disturbing and disruptive activities in big game crucial winter range will not be allowed during the period of May 1 to June 30.	Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the Authorized Officer.
BLM	Little Snake Field Office RMP	Big game (i.e., mule deer, elk, pronghorn antelope, and bighorn sheep)	Crucial winter habitat will be closed to surface disturbing activities from December 1 to April 30. Big game birthing areas will be closed to surface disturbing activities for the following species and during the following periods: elk calving (April 16 to June 30), pronghorn antelope fawning (May 1 to July 15), and bighorn sheep lambing (May 1 to July 15).	This stipulation will be applied after the big game hunting season. In the case that hunting season extends later, exceptions will be applied through normal procedures.

TABLE J-12 SEASONAL RESTRICTIONS IN SENSITIVE HABITATS				
Agency	**Applicable Plan**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
BLM	White River Field Office RMP	Big game severe winter range	No development activity is allowed from December 1 through April 30.	**Exception**: The Area Manager may grant an exception if an environmental analysis indicates that the proposed action could be conditioned so as not to interfere with habitat function or compromise animal condition in the project vicinity. An exception also may be granted if the Applicant, BLM, and CDOW negotiate compensation that would satisfactorily offset anticipated impacts on big game winter activities or habitat condition. Under mild winter conditions, when prevailing habitat or weather conditions allow early dispersal of animals from all or portions of a project area, an exception may be granted to suspend the last 60 days of this seasonal limitation. Severity of winter will be determined on the basis of snow depth, snow crusting, daily mean temperatures, and whether animals were concentrated on the winter range during the winter months. Exceptions also may be granted for actions specifically intended to enhance the long-term utility or availability of suitable habitat. **Modification**: The Area Manager may modify the size and-time frames of this stipulation if CDOW monitoring information indicates that current animal use patterns are inconsistent with dates established for animal occupation. Modifications also may be authorized if the proposed action could be conditioned so as not to interfere with habitat function or compromise animal condition. In addition, if the Applicant, BLM, and CDOW agree to habitat compensation that satisfactorily offsets detrimental impacts on activity or habitat condition.

TABLE J-12 SEASONAL RESTRICTIONS IN SENSITIVE HABITATS				
Agency	**Applicable Plan**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
				Waiver: This stipulation may be waived if the CDOW determines that all or specific portions of the area no longer satisfy this functional capacity.
Elk				
BLM	Grand Junction Field Office RMP	Elk winter range	▪ No new construction activities will occur; ▪ all activities will be conducted during daylight hours only; and ▪ vehicular access on a daily basis will be limited to a single trip between December 1 and May 1.	None
BLM	Grand Junction Field Office RMP	Elk calving grounds	▪ No new construction activities will occur; ▪ all activities will be conducted during daylight hours only; and ▪ vehicular access on a daily basis will be limited to a single trip between May 15 to June 15.	None
BLM	White River Field Office RMP	Elk production areas	This area encompasses an elk production area. No development is allowed from May 15 through June 30.	**Exception**: The Area Manager may grant an exception if an environmental analysis indicates that the proposed action can be conditioned so as not to interfere with habitat function or compromise animal condition in the project vicinity. An exception also may be granted if the Applicant, BLM, and CDOW negotiate compensation that would satisfactorily offset anticipated impacts on elk production or habitat condition. An exception also may be granted for actions intended to enhance the long-term utility or availability of suitable habitat **Modification**: The Area Manager may modify the size and time frames of this stipulation if CDOW monitoring information indicates that current animal use patterns are inconsistent with dates established for animal

TABLE J-12 SEASONAL RESTRICTIONS IN SENSITIVE HABITATS				
Agency	**Applicable Plan**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
				occupation. Modifications could be authorized if the proposed action could be conditioned so as not to interfere with critical habitat function or compromise animal condition. A modification also may be approved if the Applicant, BLM, and CDOW agree to compensation that satisfactorily offset detrimental impacts on elk production or habitat condition. **Waiver**: This stipulation may be waived if CDOW determines that the area is no longer utilized by elk for production purposes.
BLM	White River Field Office RMP	Elk/Deer summer range	This area is in deer and elk summer ranges, which due to limited extent, are considered critical habitat in appropriate CDOW game management units. This stipulation will not take effect until direct and indirect impacts on suitable summer range habitats exceed 10 percent of that available in the individual Game Management Units. When this threshold has been reached, no further development activity will be allowed from May 15 through August 15 (Note: Development is allowed until 10 percent of individual game management unit summer habitat has been affected, then additional development is allowed from August 16 through May 14).	**Exception**: The Area Manager may grant an exception if an environmental analysis indicates that the proposed action could be conditioned to have no additional influence on the utility or suitability of summer range habitats. An exception also may be granted if the Applicant, BLM, and CDOW negotiate compensation that would satisfactorily offset anticipated impacts on summer range function or habitat. Exceptions also may be granted for actions specifically intended to enhance the long-term utility or availability of suitable habitat. **Modification**: The Area Manager may modify the size and time frames of this stipulation if CDOW monitoring information indicates that current animal-use patterns are inconsistent with dates established for animal occupation. Modifications also may be authorized if the proposed action could be conditioned to have no additional influence on the utility or suitability of summer range habitats. **Waiver**: This stipulation may be waived if the

TABLE J-12 SEASONAL RESTRICTIONS IN SENSITIVE HABITATS				
Agency	**Applicable Plan**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
				CDOW determines that all or specific portions of the area no longer satisfy this functional capacity or that these summer ranges no longer merit critical habitat status. Waivers will also be applied to delineated summer range occurring below 7,350 feet (2,250 meters).
BLM	Vernal Field Office RMP	Elk/deer crucial winter range	Activities that will result in adverse impacts on deer and elk within crucial winter range will not be allowed from December 1 through April 30.	This restriction will not apply if deer and/or elk are not present, or if it is determined through analysis and coordination with UDWR that impacts will be mitigated. Factors to be considered will include snow depth, temperature, snow crusting, location of disturbance, forage quantity and quality, animal condition, and expected duration of disturbance.
BLM	Moab Field Office RMP	Elk/deer winter range	Do not allow ground-disturbing activities from November 15 to April 15.	**Exception**: This stipulation does not apply to the maintenance and operation of existing and ongoing facilities. An exception may be granted by the Field Manager if the operator submits a plan that demonstrates that impacts from the proposed action can be adequately mitigated or it is determined the habitat is not being utilized during the winter period for any given year. **Modification**: The Field Manager may modify the boundaries of the stipulation area (1) if a portion of the area is not being used as winter range by deer/elk or (2) if habitat is being utilized outside of stipulation boundaries as winter range and needs to be protected or (3) if the migration patterns have changed causing a difference in the season of use. **Waiver**: May be granted if the winter range habitat is unsuitable or unoccupied during

TABLE J-12 SEASONAL RESTRICTIONS IN SENSITIVE HABITATS				
Agency	**Applicable Plan**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
				winter months by deer/elk and there is no reasonable likelihood of future winter range use.
BLM	Moab Field Office RMP	Deer and elk fawning and calving habitat (Bookcliffs and La Sal Wildlife Management Units)	Allow no ground-disturbing activities from May 15 to June 30.	**Exception**: This stipulation does not apply to the maintenance and operation of existing and ongoing facilities. An exception may be granted by the Field Manager if the operator submits a plan that demonstrates that impacts from the proposed action can be adequately mitigated or it is determined the habitat is not being utilized during the critical period for any given year. **Modification**: The Field Manager may modify the boundaries of the stipulation area (1) if a portion of the area is not being used as fawning and calving habitat or (2) if the habitat is being utilized outside of stipulation boundaries and needs to be protected or (3) if the migration patterns have changed causing a difference in the season of use. **Waiver**: May be granted if the fawning and calving habitat is unsuitable or unoccupied during winter months by deer/elk and there is no reasonable likelihood of future winter range use.
BLM	Price Field Office RMP	Elk and mule deer crucial winter habitat	Closed December 1 to April 15	**Exception**: Upon review and monitoring, the Authorized Officer may grant exceptions because of climatic and/or range conditions if certain criteria are met and if activities would not cause undue stress to deer and elk populations or habitats. **Modification**: Season may be adjusted depending on climatic and range conditions. **Waiver**: A waiver may be granted if the winter range habitat is unsuitable for or unoccupied during winter months by deer/elk

TABLE J-12 SEASONAL RESTRICTIONS IN SENSITIVE HABITATS				
Agency	**Applicable Plan**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
				and there is no reasonable likelihood of future winter range use.
BLM	Price Field Office RMP	Elk calving and mule deer fawning areas located in the crucial summer habitat	Closed May 15 to July 5	**Exception**: Upon review and monitoring, the Authorized Officer may grant exceptions because of climatic and/or range conditions if certain criteria are met and if activities would not cause undue stress to deer and elk populations or habitats. **Modification**: Season may be adjusted depending on climatic and range conditions. **Waiver**: A waiver may be granted if the fawning and calving habitat is unsuitable or unoccupied by deer/elk and there is no reasonable likelihood of future use.
BLM	Salt Lake Field Office RMP	In crucial elk winter range; calving areas	BLM will protect important wildlife habitat values from disturbing activities by restricting seismic work, well development, new road construction, rights-of-way, and other disturbing activities (excluding maintenance activities) from December 1 to April 30, and calving areas May 1 to June 30.	None
UDWR	Recommended stipulations	Elk rut in crucial winter and summer range and calving areas	Restrictions on activities are recommended from September 1 to October 15.	
Mule Deer				
BLM	Grand Junction Field Office RMP	Deer winter range	▪ No new construction activities will occur; ▪ all activities will be conducted during daylight hours only; and ▪ vehicular access on a daily basis will be limited to a single trip between December 1 and May 1.	None
BLM	Vernal Field Office RMP	Mule deer migration corridors in McCook and Monument Ridge	No ground-disturbing activities will be allowed from April 15 through May 31	None
BLM	Salt Lake Field	In mule deer winter	BLM will protect important wildlife habitat	Specific exceptions may be granted by BLM

TABLE J-12 SEASONAL RESTRICTIONS IN SENSITIVE HABITATS				
Agency	**Applicable Plan**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
	Office RMP	range	values from disturbing activities by restricting seismic work, well development, new road construction, rights-of-way, and other disturbing activities (excluding maintenance activities) from December 1 to April 15.	if the proposed activity will not seriously disturb the wildlife habitat values being protected.
BLM	Salt Lake Field Office RMP	In crucial mule deer summer/fawning habitats	BLM will protect important wildlife habitat values from disturbing activities by restricting seismic work, well development, new road construction, rights-of-way, and other disturbing activities (excluding maintenance activities) from April 15 to July 1.	Specific exceptions may be granted by BLM if the proposed activity will not seriously disturb the wildlife habitat values being protected.
UDWR	Recommended stipulations	Mule deer rut in crucial winter range	Restrictions on activities are recommended from November 1 to November 30	None
UDWR	Recommended stipulations	Mule deer winter range	Restrictions on activities are recommended from November 1 to April 1	None
UDWR	Recommended stipulations	Mule deer parturition in crucial summer range	Restrictions on activities are recommended from May 15 to July 15	None
Pronghorn				
BLM	White River Field Office RMP	Pronghorn production areas	No development activity is allowed in this area between May 1 and June 30. The CDOW has indicated that these features exist on public lands in the White River Resource Area but have not yet delineated specific areas that will be subject to this timing restriction.	Specific exception, modification, and waiver language will be developed in cooperation with the CDOW after the affected areas have been delineated.
BLM	Vernal Field Office RMP	Pronghorn fawning ground in Antelope Flat	Do not allow activities that will result in adverse impacts on antelope from May 1 through June 30.	This restriction does not apply if pronghorn are not present or if impacts will be mitigated through other management actions. This restriction also does not apply to maintenance and operations of existing facilities.
BLM	Moab Field Office RMP	Pronghorn fawning grounds in Cisco Desert and Hatch Point (LaSal Wildlife Management Units)	Allow no ground-disturbing activities from May 1 to June 15.	**Exception**: May be granted to these dates by the Field Manager if the operator submits a plan that demonstrates that impacts from the proposed action can be adequately mitigated or if it is determined the habitat is not being utilized for fawning in any given year.

TABLE J-12 SEASONAL RESTRICTIONS IN SENSITIVE HABITATS				
Agency	**Applicable Plan**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
				Modification: The Field Manager may modify the boundaries of the stipulation area if a portion of the area is not being used as fawning grounds or if habitat is being utilized outside of stipulation boundaries as crucial fawning grounds and needs to be protected. **Waiver**: May be granted if the fawning grounds are determined to be unsuitable or unoccupied and there is no reasonable likelihood of future use of the fawning grounds.
BLM	Salt Lake Field Office RMP	In antelope fawning areas	BLM will protect important wildlife habitat values from disturbing activities by restricting seismic work, well development, new road construction, rights-of-way, and other disturbing activities excluding maintenance activities from April 15 to July 1.	Specific exceptions may be granted by BLM if the proposed activity will not seriously disturb the wildlife habitat values being protected.
Moose				
BLM	Price Field Office RMP	Crucial yearlong moose habitat	Closed seasonally December 1 to April 15	**Exception**: Upon review and monitoring, the Authorized Officer may grant exceptions because of climatic and/or range conditions if certain criteria are met and if activities would not cause undue stress to moose populations or habitats. **Modification**: Season may be adjusted depending on climatic and range conditions. **Waiver**: A waiver may be granted if the winter range habitat is unsuitable or unoccupied during winter months by moose and there is no reasonable likelihood of future winter range use.

TABLE J-12 SEASONAL RESTRICTIONS IN SENSITIVE HABITATS				
Agency	**Applicable Plan**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
Bighorn Sheep				
BLM	Grand Junction Field Office RMP	Bighorn winter range	▪ No new construction activities will occur; ▪ all activities will be conducted during daylight hours only; and ▪ vehicular access on a daily basis will be limited to a single trip between December 1 and May 1.	None
BLM	Price Field Office RMP	Desert bighorn sheep and Rocky Mountain bighorn sheep crucial yearlong habitat	Closed seasonally April 15 to June 15	**Exception**: Upon review and monitoring, the Authorized Officer may grant exceptions because of climatic and/or range conditions if certain criteria are met and if activities would not cause undue stress to desert bighorn sheep and Rocky Mountain bighorn sheep populations or habitats. **Modification**: Season may be adjusted depending on climatic and range conditions. **Waiver**: A waiver may be granted if the habitat is determined to be unsuitable for lambing and there is no reasonable likelihood of future use as bighorn lambing grounds.
Wild Horses				
BLM	Little Snake Field Office RMP	Within a 1-mile radius from wild horse water sources	No drilling or development operations will be permitted from March 1 to December 1.	None
BLM	Grand Junction Field Office RMP	Wild horse winter range	▪ No new construction activities will occur; ▪ all activities will be conducted during daylight hours only; and ▪ vehicular access on a daily basis will be limited to a single trip between December 1 and May 1.	None

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SEASONAL RESTRICTIONS IN SENSITIVE HABITATS

Agency	Applicable Plan	Area to Which Restriction Applies	Restriction	Exception
BLM	Grand Junction Field Office RMP	Wild horse foaling	▪ No new construction activities will occur; ▪ all activities will be conducted during daylight hours only; and ▪ vehicular access on a daily basis will be limited to a single trip between March 1 to July 1.	None
BLM	White River Field Office RMP	Herd management areas	To protect wild horses in this area, intensive development activities may be delayed for a specified 60 day period in the spring foaling period between March 1 and June 15.	None

SOURCES: Bureau of Land Management 1987; 1990; 2008a, b, c, d, e; 2011d; 2012e; State of Utah 2013; Colorado Greater Sage-grouse Steering Committee 2008; Utah Division of Wildlife Resources 2013b
NOTE: [1]Tables J-13, J-14, and J-15 include seasonal and spatial restrictions for nesting raptors in Wyoming, Colorado, and Utah.

TABLE J-13 SPATIAL AND SEASONAL BUFFERS FOR BREEDING RAPTORS IN WYOMING				
	Wyoming Ecological Services Field Office		**Bureau of Land Management Rawlins Field Office**	
Common Name	**Spatial Buffer (miles)**	**Seasonal Buffer**	**Spatial Buffer (miles)**	**Seasonal Buffer**
Raptors of Conservation Concern				
Golden eagle	0.50	January 15 to July 31	1.0	February 1 to July 15
Ferruginous hawk	1.0	March 15 to July 31	1.0	March 1 to July 31
Swainson's hawk	0.25	April 1 to August 31	0.75	April 1 to July 31
Bald eagle communal roost areas[1]	–	–	2.0	Surface disturbing or other disruptive activities potentially disruptive to a bald eagle communal roost will be prohibited within 2 miles of the communal roost during the period of February 1 to August 15.
Bald eagle communal winter roost areas	–	–	1.0	Surface disturbing or other disruptive activities potentially disruptive to identified bald eagle communal winter roost sites will be prohibited within 1 mile of the winter roost site from November 1 to April 1. No ground-disturbing activities will be permitted within 0.5-mile of active bald eagle communal winter roost sites year-round[2].
Bald eagle	Refer to National Bald Eagle Management Guidelines	Refer to National Bald Eagle Management Guidelines	Refer to National Bald Eagle Management Guidelines	Refer to National Bald Eagle Management Guidelines
Prairie falcon	0.50	March 1 to August 15	0.75	April 1 to July 31
Peregrine falcon	0.50	March 1 to August 15	0.75	March 1 to July 31
Short-eared owl	0.25	March 15 to August 1	0.75	March 1 to July 31
Burrowing owl	0.25	April 1 to September 15	0.75	April 1 to September 15
Northern goshawk	0.50	April 1 to August 15	0.75	April 1 to August 31
Additional Wyoming Raptors				
Osprey	0.25	April 1 to August 31	0.75	April 1 to July 31
Cooper's hawk	0.25	March 15 to August 31	0.75	April 1 to July 31
Sharp-shinned hawk	0.25	March 15 to August 31	0.75	April 1 to July 31
Red-tailed hawk	0.25	February 1 to August 15	0.75	February 1 to July 15

TABLE J-13
SPATIAL AND SEASONAL BUFFERS FOR BREEDING RAPTORS IN WYOMING

Common Name	Wyoming Ecological Services Field Office		Bureau of Land Management Rawlins Field Office	
	Spatial Buffer (miles)	Seasonal Buffer	Spatial Buffer (miles)	Seasonal Buffer
Rough-legged hawk (winter resident only)	–	–	–	–
Northern harrier	0.25	April 1 to August 15	0.75	April 1 to July 31
Merlin	0.50	April 1 to August 15	0.75	April 1 to July 31
American kestrel	0.13	April 1 to August 15	0.75	April 1 to July 31
Common barn owl	0.13	February 1 to September 15	0.75	February 1 to July 15
Northern saw-whet owl	0.25	March 1 to August 31	–	–
Boreal owl	0.25	February 1 to July 31	–	–
Long-eared owl	0.25	February 1 to August 15	0.75	March 1 to July 31
Great horned owl	0.13	December 1 to September 30	0.75	February 1 to July 15
Northern pygmy-owl	0.25	April 1 to August 1	–	–
Eastern screech -owl	0.13	March 1 to August 15	0.75	March 1 to July 31
Western screech-owl	0.13	March 1 to August 15	0.75	March 1 to July 31
Great gray owl	0.25	March 15 to August 31	–	–

SOURCE: Bureau of Land Management 2008b; U.S. Fish and Wildlife Service 2012f
NOTES:
[1]A communal roost is defined as an area usually less than 10 acres in size that contains or has contained more than 6 bald eagles on any given night.
[2]The year-round buffer zone on ground-disturbing activities of 0.5 mile of active (includes both occupied and unoccupied as defined in the introduction to Section J.8) bald eagle communal winter roost sites may be adjusted based on site-specific information through coordination with and written concurrence from the U.S. Fish and Wildlife Service, Wyoming Field Office.

TABLE J-14
RECOMMENDED SPATIAL AND SEASONAL BUFFERS FOR BREEDING RAPTORS IN COLORADO

Common Name	Colorado Department of Wildlife		Bureau of Land Management Field Office[1]	
	Spatial Buffer (miles)	Seasonal Buffer[1]	Spatial Buffer (miles)	Seasonal Buffer[2]
Raptor nesting sites; listed, proposed, and candidate threatened and endangered and Bureau of Land Management (BLM) sensitive except bald eagle and ferruginous hawks[3]	–	–	0.50	This area encompasses the nests of threatened, endangered, or candidate raptors. No development activities are allowed within 0.5 mile of identified nest sites from February 1 through August 15, or until fledgling and dispersal of young (White River Field Office[4]).

TABLE J-14 RECOMMENDED SPATIAL AND SEASONAL BUFFERS FOR BREEDING RAPTORS IN COLORADO				
	Colorado Department of Wildlife		**Bureau of Land Management Field Office[1]**	
Common Name	**Spatial Buffer (miles)**	**Seasonal Buffer[1]**	**Spatial Buffer (miles)**	**Seasonal Buffer[2]**
Raptor nesting sites; other than threatened and endangered and candidate threatened and endangered species[3]	–	–	0.50	No development activities are allowed within 0.5 mile of identified nests from February 1 through August 15, or until fledgling and dispersal of young (White River Field Office[4]).
Bald eagle nests[3]	0.50	October 15 to July 31	0.25	February 1 to August 15 (No development is allowed within 0.5 mile of identified nests from December 15 to July 15, or until fledgling and dispersal of young in White River Field Office[4]).
Bald eagle concentration areas	–	–	–	Protect bald eagle concentration areas from ground-disturbing activities from December 1 to April 1 (Grand Junction Field Office).
Active bald eagle winter night roost without a direct line of sight	0.25	November 15 to March 15	0.25	February 1 to August 15 (within 0.5 mile of identified roost sites or concentration areas from November 1 to April 15 White River Field Office[4]).
Bald eagle hunting perch	Contact Colorado Department of Wildlife	Contact CDOW	0.25	February 1 to August 15
Ferruginous hawk	0.50	February 1 to July 15	1.0	No development is allowed within 1 mile of identified nests from February 1 through August 15, or until fledgling and dispersal of young (White River Field Office[4]).
Golden eagle	0.50	December 15 to March 15	0.25	February 1 to August 15
Prairie falcon	0.5	March 15 to July 15	0.25	February 1 to August 15
Peregrine falcon	0.5	March 15 to July 31	0.25	February 1 to August 15 (March 15- July 1 in Grand Junction Field Office)
Burrowing owl	150 feet	March 15 to October 31	0.25	February 1 to August 15
Northern goshawk	0.50	March 1 to September 15	0.25	February 1 to August 15
Osprey	0.25	April 1 to August 31	0.25	February 1 to August 15

TABLE J-14
RECOMMENDED SPATIAL AND SEASONAL BUFFERS FOR BREEDING RAPTORS IN COLORADO

Common Name	Colorado Department of Wildlife		Bureau of Land Management Field Office[1]	
	Spatial Buffer (miles)	Seasonal Buffer[1]	Spatial Buffer (miles)	Seasonal Buffer[2]
Red-tailed hawk	0.33	February 15 to July 15	0.25	February 1 to August 15
Swainson's hawk	0.25	April 1 to July 15	0.25	February 1 to August 15
All other raptors	Not applicable	Not applicable	0.25	February 1 to August 15

SOURCE: Bureau of Land Management 2011d; Colorado Parks and Wildlife 2008
NOTES:
[1]Little Snake Field Office unless otherwise noted.
[2]Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the Authorized Officer.
[3]Active nests include both occupied and unoccupied as defined in the introduction to Section J.8.
[4]**Exception**: An exception may be granted to these dates by the Area Manager, if authorization is obtained from the U.S. Fish and Wildlife Service (through applicable provisions of the Endangered Species Act, Eagle Protection Act, or Migratory Bird Treaty Act) to harass, harm, wound, or kill in the context of active nesting attempts. An exception also can be granted if an environmental analysis of the proposed action indicates that nature or conduct of the activity could be conditioned so as not to impair the utility of nest for current or subsequent nesting activity or occupancy. The Area Manager may, also grant an exception if the nest is unattended or remains unoccupied by May 15 of the Project year. **Modification**: The Area Manager may modify the size of the stipulation area if an environmental analysis indicates that a portion of the area is nonessential to nest utility or function, or that the proposed action could be conditioned so as not to impair the utility of the nest site for current or subsequent nest activities or occupation. The stipulation also may be modified if the Applicant, BLM, and where necessary, other affected interests, negotiate compensation that satisfactorily offsets anticipated impacts on candidate and BLM sensitive raptor breeding activities and/or habitats. Modifications also could occur if sufficient information is provided that supports the contention that the action would not contribute to the suppression of breeding population densities or the population's production or recruitment regime from a geographic reference area perspective. If a species status is downgraded, or if a species is delisted, the size of the timing limitation area may be reduced. **Waiver**: A waiver may be granted if the species becomes extinct or there is no reasonable likelihood of site occupation over a minimum 10-year period.

TABLE J-15
NESTING PERIODS AND RECOMMENDED BUFFERS FOR RAPTORS IN UTAH

Common Name	All of Utah		Bureau of Land Management Field Office	
	Spatial Buffer (miles)	Seasonal Buffer	Spatial Buffer (miles)	Seasonal Buffer
Known raptor nest sites (within 0.5 mile of nests occupied in the past 3 years) and raptor crucial cliff-nesting complex habitats[1]	–	–	0.50	Closed seasonally between February 1 to July 15 (Price Field Office[2])
Active and inactive nests; designated as crucial nesting habitat[1]	–	–	0.25	These areas are classified as Category 2 for fluid mineral leasing, and off-highway vehicle use is limited to existing roads and trails to prevent significant disturbance to nesting raptors from March 1 through June 30 (Fillmore Field Office)

TABLE J-15 NESTING PERIODS AND RECOMMENDED BUFFERS FOR RAPTORS IN UTAH				
	All of Utah		**Bureau of Land Management Field Office**	
Common Name	**Spatial Buffer (miles)**	**Seasonal Buffer**	**Spatial Buffer (miles)**	**Seasonal Buffer**
Active raptor nest sites[1]	–	–	0.50	The Bureau of Land Management will protect important wildlife habitat values from disturbing activities by restricting seismic work, well development, new road construction, rights-of-way, and other disturbing activities excluding maintenance activities from March 1 to July 15 (Salt Lake Field Office)
Bald eagle	1.0	No surface disturbing activities within 1 mile of identified nest sites from January 1 to August 31	0.50	No surface disturbing activities or development is allowed within 0.5 mile of identified winter roost sites from November 1 through March 31 (Moab Field Office[3])
Golden eagle	0.50	January 1 to August 31	–	–
Northern goshawk	0.50	March 1 to August 15 (March 1 to September 30 in post-fledgling areas U.S. Forest Service[4])	–	–
Northern harrier	0.50	April 1 to August 15	–	–
Cooper's hawk	0.50	March 15 to August 31	–	–
Ferruginous hawk	0.50	March 1 to August 1	–	–
Red-tailed hawk	0.50	March 15 to August 15	–	–
Sharp-shinned hawk	0.50	March 15 to August 31	–	–
Swainson's hawk	0.50	March 1 to August 31	–	–
Turkey vulture	0.50	May 1 to August 15	–	–
Peregrine falcon	1.0	February 1 to August 31	–	–
Prairie falcon	0.25	April 1 to August 31	–	–
Merlin	0.50	April 1 to August 31	–	–
American kestrel	Refer to migratory bird guidelines in Table J-12	April 1 to August 15	–	–
Osprey	0.50	April 1 to August 31	–	–
Boreal owl	0.25	February 1 to July 31	–	–
Burrowing owl	0.25	March 1 to August 31	–	–
Flammulated owl	0.25	April 1 to September 30	–	–
Great horned owl	0.25	December 1 to September 31	–	–
Long-eared owl	0.25	February 1 to August 15	–	–
Northern saw-whet owl	0.25	March 1 to August 31	–	–

TABLE J-15
NESTING PERIODS AND RECOMMENDED BUFFERS FOR RAPTORS IN UTAH

Common Name	All of Utah		Bureau of Land Management Field Office	
	Spatial Buffer (miles)	Seasonal Buffer	Spatial Buffer (miles)	Seasonal Buffer
Short-eared owl	0.25	March 1 to August 1	–	–
Mexican spotted owl	0.50	March 1 to August 31	0.50	For all temporary actions that may affect owls or suitable habitat. If the action occurs entirely outside of the owl breeding season from March 1 through August 31, and leaves no permanent structure or permanent habitat disturbance, the action can proceed without an occupancy survey. If action will occur during a breeding season, survey for owls prior to commencing activity. If owls are found, activity should be delayed until outside of the breeding season (Moab Field Office[5])
Northern pygmy owl	0.25	April 1 to August 15	–	–
Eastern and Western screech owl	0.25	March 1 to August 15	–	–
Common barn-owl	Refer to migratory bird guidelines in Table J-12	February 1 to September 15	–	–

SOURCE: Romin and Muck 2002

NOTES:

[1]Active nests include both occupied and unoccupied as defined in the introduction to Section J.8.

[2]**Exception**: The Authorized Officer may grant an exception if the raptor nest in question is deemed to be inactive by May 31 and if the proposed activity would not result in a permanent structure or facility that would cause the subject nest to become unsuitable for nesting in future years. **Modification**: Season may be adjusted depending on climatic and range conditions. Distance may be adjusted if natural features provide adequate visual screening. **Waiver**: This stipulation may be waived if, in cooperation with the Utah Division of Wildlife Resources, it is determined that the site has been permanently abandoned or unoccupied for a minimum of 3 years.

[3]Temporary activities or habitat alterations that may disturb nesting bald eagles will be restricted from January 1 to August 31. Additionally, where daily activities must occur in these spatial buffers, and are approved through subsequent consultation, activities should be properly scheduled to occur after 9 a.m. and terminate at least 1 hour before official sunset to ensure that bald eagles using these roosts are allowed the opportunity to vacate their roost in the morning and return undisturbed in the evening.

[4]U.S. Forest Service Land and Resource Management Plan Amendment – Utah Northern Goshawk Project (2000)

[5]Temporary activities are defined as those that are completed prior to the start of the following raptor breeding season, leaving no permanent structures and resulting in no permanent habitat loss.

J.9 Surface Use Restrictions for Biological Resources

Many BLM RMPs, USFS LRMPs, state wildlife management plans, and agency guidelines relevant to the Project area identify restrictions on surface use (e.g., no surface occupancy, conditional surface use, or no surface disturbance) in addition to seasonal restrictions to protect plants, wildlife, and their habitats. Tables J-16 and J-17 summarize restrictions on surface use of lands to protect biological resources and exception criteria, if identified, from agency policies and plans relevant to the Project area.

TABLE J-16 NO SURFACE OCCUPANCY AND NO SURFACE DISTURBANCE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
Wetlands and Riparian Areas				
Bureau of Land Management (BLM)	Utah State Office	Within 100 meters of riparian areas	Utah Riparian Policy states that "No new ground-disturbing activities will be allowed"	**Exception**: An exception could be authorized if: ▪ there are no practical alternatives or, ▪ all long-term impacts can be fully mitigated, or ▪ the activity will benefit and enhance the riparian area.
BLM	Little Snake Field Office Resource Management Plan (RMP)	Up to 0.25 mile from perennial water sources (i.e., streams, rivers, springs, and seeps with perennial flow)	No surface occupancy, if necessary, depending on type and use of the water source, soil type, and slope steepness. Soil/slope characteristics that would initiate this no surface occupancy stipulation include those soils defined as fragile soils. The following soil/slope characteristics are indicative of a potentially fragile soil: ▪ Soils rated as highly or severely erodible by wind or water, as described in Natural Resources Conservation Service (NRCS) soil survey reports. ▪ Soils on slopes greater than 35 percent, particularly if they have one of the following characteristics: • a surface texture that is sand, loamy sand, very fine sandy loam, fine sandy loam, silty clay, or clay; • a depth to bedrock that is less than 20 inches (51 centimeters); • an erosion hazard rating of high or very high; and • a K-factor (soil erodibility potential) factor greater than 0.32.	None
BLM	Grand Junction Field Office RMP	Riparian areas	No surface disturbance in riparian areas year round	None

TABLE J-16
NO SURFACE OCCUPANCY AND NO SURFACE DISTURBANCE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS

Agency	Applicable Plan/Policy	Area to Which Restriction Applies	Restriction	Exception
BLM	Vernal Field Office RMP	Within 100 year floodplains or within 100 meters of riparian areas. Also, no ground-disturbing activities in public water reserves or within 100 meters of springs.	No ground-disturbing activities	**Exception**: An exception could be authorized if: ▪ there are no practical alternatives; ▪ impacts could be fully mitigated; or ▪ the action is designed to benefit and enhance the resource values. **Modification**: None **Waiver**: None
BLM	Grand Junction Field Office RMP	Riparian areas and Skippers Island	Prohibit surface disturbance in these areas year round.	None
BLM	Moab Field Office RMP	Within 100 meters of riparian areas; within 100-year floodplains, within 100 meters of a natural spring, or in public water reserves.	Ground-disturbing activities are precluded within 100 meters of riparian areas. Allow no surface occupancy and preclude ground-disturbing activities within 100-year floodplains, within 100 meters of a natural spring, or in public water reserves.	None
BLM	Price Field Office RMP	Natural spring	No surface disturbance or occupancy would be maintained around natural springs to protect the water quality of the spring. The distance would be based on geophysical, riparian, and other factors necessary to protect the water quality of the springs. If these factors cannot be determined, a 660-foot buffer zone would be maintained.	**Exception**: An exception could be authorized if ▪ there are no practical alternatives; ▪ impacts could be fully mitigated; or ▪ the action is designed to enhance the riparian resources. **Modification**: None **Waiver**: None

TABLE J-16 NO SURFACE OCCUPANCY AND NO SURFACE DISTURBANCE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
BLM	Price and Richfield Field Office RMPs	Within 100-year floodplain or 100 meters (330 feet) on either side from the centerline of the selected alternative, whichever is greater, along all perennial and intermittent streams, streams with perennial reaches, and riparian areas	No new surface disturbance (excluding fence lines)	**Exception**: An exception could be authorized if ▪ there are no practical alternatives; ▪ impacts could be fully mitigated; or ▪ the action is designed to enhance the riparian resources. **Modification**: None **Waiver**: None
Soils				
BLM	White River Field Office RMP	Landslide areas (i.e., identified soils are considered unstable and subject to slumping and mass movement)	Surface occupancy will not be allowed in such areas delineated from U.S. Department of Agriculture Soil Conservation Service Order III Soil Survey.	Exceptions, modifications, or waivers to this no surface occupancy stipulation may be granted by the Area Manager.
BLM	Grand Junction Field Office RMP	Soil slump hazard areas Baxter-Douglas Pass Plateau Canyon	No surface occupancy stipulation	None
BLM	Grand Junction Field Office RMP	Slopes greater than 40 percent; unstable and slumping soils in the areas of Baxter Pass, Douglas Pass, and Plateau Creek; face of the Bookcliffs	No surface occupancy stipulation; allow other ground-disturbing activities only after analyzing site-specific conditions and potential for safety hazards and reclamation	None
BLM	Vernal Field Office RMP	For slopes greater than 40 percent	No surface disturbance will be allowed unless it is determined that it will cause undue or unnecessary degradation to pursue other placement alternatives.	None
BLM	Price Field Office RMP	For slopes greater than 40 percent	No surface occupancy	**Exception**: If after an environment analysis the Authorized Officer determines that it would cause undue or unnecessary degradation to

TABLE J-16 NO SURFACE OCCUPANCY AND NO SURFACE DISTURBANCE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
				pursue other placement alternatives, surface occupancy in the area may be authorized. In addition, a plan from the operator and BLM's approval of the plan would be required before construction and maintenance could begin. The plan would have to include: ▪ An erosion control strategy ▪ Geographic information systems modeling ▪ Proper survey and design by a certified engineer. **Modification**: None **Waiver**: None
Special Status Plants				
BLM Sensitive Plants and Remnant Vegetation Associations				
BLM	White River Field Office RMP	In known populations of these plants	No surface occupancy will be allowed.	Exceptions, modifications, or waivers to this no surface occupancy stipulation may be granted by the Area Manager.
Known and Potential Habitat for Listed and Candidate Threatened/Endangered Plant Species or Potential Habitat				
BLM	White River Field Office RMP	On mapped populations of these plants	No surface occupancy will be allowed.	Exceptions, modifications, or waivers to this no surface occupancy stipulation may be granted by the Area Manager.
Special Status Plant Species – General				
Clay Phacelia				
U.S. Forest Service/ U.S. Fish and Wildlife Service (FWS)	Clay phacelia conservation measures	Within 650 feet of known occupied habitat	No new development in known occupied sites or within 650 feet of known occupied sites. Existing sites need to be surveyed to determine site boundaries prior to development site selection if development is to occur close to the 650-foot buffer area.	None
Jones Cycladenia				
BLM	Moab Field Office RMP	Within 300 feet of plants and suitable habitat	Preclude ground-disturbing activities within 300 feet of plants and suitable habitat	None

TABLE J-16 NO SURFACE OCCUPANCY AND NO SURFACE DISTURBANCE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
Spineless Hedgehog Cactus				
BLM	Grand Junction Field Office RMP	Actual sites	Prohibit surface disturbance in these areas year round.	The decision to protect habitats by placing stipulations on disturbance type activities will be implemented by comparing activities proposed with areas identified for protective management. Applicable stipulations will be placed on projects that lie in the protected areas.
Uinta Basin Hookless Cactus				
BLM	Grand Junction Field Office RMP	Actual sites	Prohibit surface disturbance in these areas year round.	The decision to protect habitats by placing stipulations on disturbance type activities will be implemented by comparing activities proposed with areas identified for protective management. Applicable stipulations will be placed on projects that lie in the protected areas.
Special Status Wildlife				
Black-footed Ferret				
BLM	Grand Junction Field Office RMP	Actual sites	Prohibit surface disturbance in these areas year round.	The decision to protect habitats by placing stipulations on disturbance type activities will be implemented by comparing activities proposed with areas identified for protective management. Applicable stipulations will be placed on projects that lie in the protected areas.
White-tailed Prairie Dog				
BLM	Moab Field Office RMP	Within 660 feet of white-tailed prairie dog colonies	Do not allow ground-disturbing activities within 660 feet of prairie dog colonies identified in prairie dog habitat (Note: the size of the habitat varies by alternative). No permanent aboveground facilities are allowed within the 660-foot buffer.	**Exception**: An exception may be granted if the Applicant submits a plan that indicates that impacts of the proposed action can be adequately mitigated or, if due to the size of the town, there is no reasonable location to develop a lease and avoid colonies the Field Manager will allow for loss of prairie dog colonies and/or habitat to satisfy terms and conditions of the lease.

TABLE J-16 NO SURFACE OCCUPANCY AND NO SURFACE DISTURBANCE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
BLM	Moab Field Office RMP	Within 660 feet of Gunnison prairie dog colonies	Do not allow ground-disturbing activities within 660 feet of prairie dog colonies identified in prairie dog habitat (Note: the size of the habitat varies by alternative). No permanent aboveground facilities are allowed within the 660-foot buffer.	**Exception**: An exception may be granted if the Applicant submits a plan that indicates that impacts of the proposed action can be adequately mitigated or, if due to the size of the town, there is no reasonable location to develop a lease and avoid colonies the Field Manager will allow for loss of prairie dog colonies and/or habitat to satisfy terms and conditions of the lease.
BLM	Vernal Field Office RMP	Within 660 feet of prairie dog colonies identified in prairie dog habitat in the Coyote Basin Complex (which includes the Coyote Basin, Kennedy Wash, Shiner, and Snake John subcomplexes) and the Myton Bench Complex.	Do not allow ground-disturbing activities. No permanent aboveground facilities are allowed within the 660-foot buffer.	**Exception**: An exception may be granted if the Applicant submits a plan that indicates that impacts of the proposed action can be adequately mitigated or, if due to the size of the town, there is no reasonable location to develop a lease and avoid colonies the Field Manager will allow for loss of prairie dog colonies and/or habitat to satisfy terms and conditions of the lease. **Modification**: The Field Manager may modify the boundaries of the stipulation area if portions of the area does not include prairie dog habitat or active colonies are found outside the current defined area, as determined by the BLM. **Waiver**: May be granted if, in the leasehold, it is determined that habitat no longer exists or has been destroyed.

TABLE J-16 NO SURFACE OCCUPANCY AND NO SURFACE DISTURBANCE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
Colorado River Fishes				
BLM	Little Snake Field Office RMP	In critical or occupied habitat of Colorado pikeminnow (*Ptychocheilus lucius*), razorback sucker (*Xyrauchen texanus*), humpback chub (*Gila cypha*), and bonytail (*Gila elegans*).	Require no surface occupancy stipulations.	Exceptions that could adversely affect listed fish (such as bridge abutments) will require site-specific consultation with the FWS.
BLM	Moab Field Office RMP	Within the 100-year floodplain of the Colorado River, Green River, and at the confluence of the Dolores and Colorado rivers	No ground-disturbing activities will be allowed.	Any exceptions to this requirement will require consultation with the FWS. Restrictions on surface disturbance in this critical habitat will be developed through this consultation process.
Columbian Sharp-tailed Grouse				
BLM	Rawlins Field Office RMP	Within 0.25 mile of perimeter of occupied Colombian sharp-tailed grouse leks	Prohibit surface disturbance/occupancy year round	None
BLM	Little Snake Field Office RMP	Within a 0.25-mile radius of a lek site	The no surface occupancy area may be altered depending on the active status of the lek or the geographical relationship of topographical barriers and vegetation screening to the lek site.	None
Greater Sage-grouse				
State of Wyoming	Executive Order for Greater Sage-grouse in Wyoming, 2011	Within 0.6 mile of the perimeter of occupied sage-grouse leks in core areas	No surface occupancy. Other activities may be authorized with the application of appropriate seasonal stipulations, provided the resources protected by the no surface occupancy are not adversely affected.	**Exceptions**: Any exceptions to these general or specific stipulations will be considered on a case-by-case basis and must show that the exception will not cause declines in sage-grouse populations.

TABLE J-16 NO SURFACE OCCUPANCY AND NO SURFACE DISTURBANCE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
State of Wyoming	Executive Order for Greater Sage-grouse in Wyoming, 2011	Outside 0.6 mile of the perimeter of sage-grouse leks in core areas	Transportation: Locate main roads used to transport production and/or waste products greater than 1.9 miles from the perimeter of occupied sage-grouse leks. Locate other roads used to provide facility site access and maintenance greater than 0.6 mile from the perimeter of occupied sage-grouse leks in core areas. Construct roads to minimum design standards needed for production activities. Overhead Lines: Bury lines when possible, if not; locate overhead lines at least 0.6 mile from the perimeter of occupied sage-grouse leks in core areas. New lines should be raptor proofed if not buried.	**Exceptions**: Any exceptions to these general or specific stipulations will be considered on a case-by-case basis and must show that the exception will not cause declines in sage-grouse populations.
Colorado Parks and Wildlife (CPW)	Colorado Greater Sage-grouse Conservation Plan	Within a 0.6-mile radius area around a lek	On federal lands, the 0.6-mile radius area around a lek in breeding habitat could be defined as an area of no surface occupancy or avoidance area. Every possible opportunity to avoid or minimize the impact should be exhausted to prevent development in this area, but allowances are provided. The 4-mile radius is not a no surface occupancy or avoidance area. It is an area of consideration where the disturbance guidelines should be applied when, and if, possible.	None
State of Utah	Conservation Plan for Greater Sage-grouse in Utah, 2013	Lek	▪ Avoid disturbance in the lek, if possible. The Applicant must demonstrate why avoidance is not possible. ▪ If avoidance is not possible, use minimization as appropriate to the lek. ▪ If minimization is not sufficient, mitigation is required. Mitigation should be calculated at a minimum of a 4:1 ratio starting with the first acre disturbed. Mitigation must produce lands capable of supporting greater sage-grouse as	None

TABLE J-16 NO SURFACE OCCUPANCY AND NO SURFACE DISTURBANCE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
			habitat before the proposed disturbance occurs, though birds do not need to be using the mitigated area. The Applicant of the disturbance must demonstrate that the conditions have been met. ▪ New permanent disturbance, including structures, fences, and buildings, should not be located in the lek itself. ▪ No permanent disturbance within 1 mile of the lek, unless it is not visible to the sage-grouse using the lek. ▪ Fences should not be located adjacent to leks where bird collisions would be expected to occur. If required, the construction of any fences near the lek should follow the standards identified in the NRCS fence collision risk tool (refer to NRCS/Conservation Effects Assessment Project Conservation Insight Publication *Applying the Sage Grouse Fence Collision Risk Tool to Reduce Bird Strikes*.) ▪ A disturbance outside the lek should not produce noise that rises more than 10 decibels above the background level at the edge of the lek during breeding season.	
BLM	Little Snake Field Office RMP	Within a 0.6-mile radius of a lek site.	No surface occupancy	The no surface occupancy area may be altered depending on the active status of the lek, habitat characteristics, or the geographical relationship of topographical barriers and vegetation screening to the lek site.
BLM	White River Field Office RMP	Within 0.25 mile of identified lek sites.	No surface occupancy	Exceptions, modifications, or waivers to this no surface occupancy stipulation may be granted by the Area Manager.
BLM	Vernal Field Office RMP	Within 0.25 mile of active sage grouse leks	No ground-disturbing activities year round.	None

TABLE J-16 NO SURFACE OCCUPANCY AND NO SURFACE DISTURBANCE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
BLM	Moab Field Office RMP	Within 0.5 mile of greater sage-grouse leks.	All ground-disturbing activities will be prohibited on a year-round basis.	**Exception**: An exception may be granted by the Field Manager if the operator submits a plan that demonstrates that impacts from the proposed action can be adequately mitigated. **Modification**: The Field Manager may modify the boundaries of the stipulation area if (1) portions of the area do not include lek sites, or (2) the lek site(s) have been completely abandoned or destroyed, or (3) occupied lek site(s) occur outside the current defined area; as determined by the BLM. **Waiver**: A waiver may be granted if there are no active lek site(s) in the leasehold and it is determined the site(s) have been completely abandoned or destroyed or occur outside current defined area, as determined by the BLM.
BLM	Price Field Office RMP	Within 0.5 mile of greater sage-grouse leks	No surface occupancy.	The BLM Authorized Officer can except, modify, or waive surface stipulations. BLM will coordinate as needed with the appropriate agency or entity. A holder of a land-use authorization document can be excepted from the stipulation on a one-time basis. A modification can be a change in the language or provisions of a surface stipulation, either temporarily or permanently. A waiver permanently excepts the surface stipulation.
BLM	Richfield Field Office RMP	Within 0.5 mile of greater sage-grouse leks	No surface occupancy	**Exception**: An exception may be granted by the Field Manager if the operator submits a plan that demonstrates that impacts from the proposed action can be adequately mitigated. **Modification**: The Field Manager may modify the boundaries of the stipulation area if (1) portions of the area do not include lek sites, (2) the lek site(s) have been completely abandoned or destroyed, or (3) occupied lek site(s) occur

TABLE J-16 NO SURFACE OCCUPANCY AND NO SURFACE DISTURBANCE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
				outside the current defined area, as determined by the BLM. **Waiver**: A waiver may be granted if there are no active lek site(s) in the leasehold and it is determined the site(s) have been completely abandoned or destroyed or occur outside current defined area, as determined by the BLM.
BLM	Moab Field Office RMP	Within 0.5 mile of a lek in sage-grouse habitat	If greater sage-grouse leks are discovered in sage grouse habitat, no ground-disturbing activities will be allowed.	**Exception**: An exception may be granted by the Field Manager if the operator submits a plan that demonstrates that impacts from the proposed action can be adequately mitigated. **Modification**: The Field Manager may modify the boundaries of the stipulation area if (1) portions of the area do not include lek sites, or (2) the lek site(s) have been completely abandoned or destroyed, or (3) occupied lek site(s) occur outside the current defined area; as determined by the BLM. **Waiver**: A waiver may be granted if there are no active lek site(s) in the leasehold and it is determined the site(s) have been completely abandoned or destroyed or occur outside current defined area, as determined by the BLM.
BLM	Moab Field Office RMP	Within 0.6 mile of a lek	If Gunnison sage-grouse leks are discovered in sage-grouse habitat, no ground-disturbing activities will be allowed within 0.6 mile of a lek.	**Exception**: An exception may be granted by the Field Manager if the operator submits a plan that demonstrates that impacts from the proposed action can be adequately mitigated. **Modification**: The Field Manager may modify the boundaries of the stipulation area if (1) portions of the area do not include lek sites, or (2) the lek site(s) have been completely abandoned or destroyed, or (3) occupied lek site(s) occur outside the current defined area, as determined by the BLM. **Waiver**: A waiver may be granted if there are

TABLE J-16 NO SURFACE OCCUPANCY AND NO SURFACE DISTURBANCE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
				no active lek site(s) in the leasehold and it is determined the site(s) have been completely abandoned or destroyed or occur outside current defined area, as determined by the BLM.
Mexican Spotted Owl				
BLM	Little Snake Field Office RMP	All protected activity centers	No surface occupancy will be applied.	None
BLM	Moab Field Office RMP	Within 0.5 mile of identified nest site; in the designated protected activity center	Survey two consecutive years for owls according to established protocol prior to commencing of activity. If owls are found, no permanent actions will occur. If nest site is unknown, no activity will occur in the designated protected activity center.	None
BLM	Price Field Office RMP	Within 0.5 mile of known Mexican spotted owl nests	No surface occupancy.	The BLM Authorized Officer can except, modify, or waive surface stipulations. BLM will coordinate as needed with the appropriate agency or entity. A holder of a land-use authorization document can be excepted from the stipulation on a one-time basis. A modification can be a change in the language or provisions of a surface stipulation, either temporarily or permanently. A waiver permanently excepts the surface stipulation.
BLM	Richfield Field Office RMP	If project activities occur within 0.5 mile of suitable owl habitat, dependent in part on if the action is temporary or permanent. (Note: Temporary activities are defined as those that are completed prior to the start of the following raptor breeding season,	Temporary: If action occurs entirely outside of the owl breeding season, and leaves no permanent structure or permanent habitat disturbance, action can proceed without an occupancy survey: ▪ If action will occur during a breeding season, survey for owls prior to commencing activity. If owls are found, activity should be delayed until outside of the breeding season. ▪ Eliminate access routes created by a project through such means as raking out scars, revegetation, gating access points, etc. For all	None

TABLE J-16 NO SURFACE OCCUPANCY AND NO SURFACE DISTURBANCE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
		leaving no permanent structures and resulting in no permanent habitat loss. Permanent activities continue for more than one breeding season and/or cause a loss of owl habitat or displace owls through disturbances [e.g., creation of a permanent structure including but not limited to well pads, roads, pipelines, electrical power line]).	permanent actions that may affect owls or suitable habitat ▪ Permanent: Survey two consecutive years for owls according to established protocol prior to commencing of activity. ▪ If owls are found, no actions will occur within 0.5 mile of identified nest site. ▪ If nest site is unknown, no activity will occur in the designated protected activity center. ▪ Avoid placing permanent structures within 0.5 mile of suitable habitat unless surveyed and not occupied. ▪ Reduce noise emissions (e.g., use hospital-grade mufflers) to 45 A-weighted decibels at 0.5 mile from suitable habitat, including canyon rims. Placement of permanent noise-generating facilities should be determined by a noise analysis to ensure noise does not encroach on a 0.5-mile buffer for suitable habitat, including canyon rims. ▪ Limit disturbances to and in suitable owl habitat by staying on designated routes. ▪ Limit new access routes created by the project. Prior to ground-disturbing activities in Mexican spotted owl protected activity centers, breeding habitats, or designated critical habitat, specific principles should be considered to control erosion.	
Mountain Plover				
BLM	Little Snake Field Office RMP	Within 0.125 mile around all plover nest sites	No surface occupancy stipulations. The boundaries of the stipulated area may be modified if the Authorized Officer determines that surface occupancy will not harm the integrity of the nest or nest location. Implement controlled-surface	None

TABLE J-16 NO SURFACE OCCUPANCY AND NO SURFACE DISTURBANCE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
			use and timing stipulation during breeding season.	
Southwestern Willow Flycatcher				
BLM	Moab Field Office RMP	Within 300 feet of suitable riparian habitat	Activities will maintain a 300-foot buffer from suitable riparian habitat year long.	**Exception**: An exception may be granted by the Field Manager if authorization is obtained from FWS (through applicable provisions of the Endangered Species Act [ESA]). The Field Manager also may grant an exception if an environmental analysis indicates that the nature of the conduct of the actions, as proposed or conditioned, will not impair the primary constituent element determined necessary for the survival and recovery of the southwestern willow flycatcher, and FWS concurs with this determination. **Modification**: The Field Manager may modify the boundaries of the stipulation area if an environmental analysis indicates, and FWS (through applicable provisions of the ESA) determines that a portion of the area is not being used as southwestern willow flycatcher habitat. **Waiver**: May be granted if the southwestern willow flycatcher is de-listed and if FWS determines it is not necessary for the survival and recovery of the southwestern willow flycatcher.
Western Yellow-billed Cuckoo				
BLM	Little Snake Field Office RMP	Within 0.25 mile of any suitable yellow-billed cuckoo habitat	Prohibit permanent ground-disturbing activities (no surface occupancy)	Exceptions should be evaluated on a case-by-case basis to avoid adverse impacts.
BLM	Moab Field Office RMP	Within 100 meters of yellow-billed cuckoo habitat	No ground-disturbing activities will be conducted within 100 meters of yellow-billed cuckoo habitat (riparian areas) from May 15 through July 20.	**Exception**: An exception may be granted by the Field Manager if authorization is obtained from FWS (through applicable provisions of the ESA). The Field Manager also may grant an

TABLE J-16 NO SURFACE OCCUPANCY AND NO SURFACE DISTURBANCE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
				exception if an environmental analysis indicates that the nature of the conduct of the actions, as proposed or conditioned, will not impair the primary constituent element determined necessary for the survival and recovery of the yellow-billed cuckoo.
Big Game				
Elk				
BLM	Grand Junction Field Office RMP	Elk calving areas	Prohibit surface disturbance in these areas year round. The decision to protect habitats by placing stipulation on disturbance type activities will be implemented by comparing activities proposed with areas identified for protective management. Applicable stipulations will be placed on projects that lie in the protected areas.	None
Bighorn Sheep				
BLM	Moab Field Office RMP	In desert bighorn lambing grounds and migration corridors	No ground-disturbing activities are allowed	**Exception**: In migration corridors, pipeline and road construction and geophysical exploration for oil and gas development would be allowed from June 16 through October 14 and from December 16 through March 31. The Field Manager also may grant an exception if the operator submits a plan that demonstrates that impacts from the proposed action can be adequately mitigated. **Modification**: The Field Manager may modify the boundaries of the stipulation area if a portion of the area is (1) not being used as desert bighorn lambing grounds or migration corridors (2) if habitat is being utilized outside of stipulation boundaries for and needs to be protected. **Waiver**: A waiver may be granted if the habitat is determined as unsuitable for lambing or

TABLE J-16 NO SURFACE OCCUPANCY AND NO SURFACE DISTURBANCE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
				migration and there is no reasonable likelihood of future use as desert bighorn lambing and/or rutting grounds and migration corridors.
Raptors				
Active Nests				
CPW	Colorado Division of Wildlife Raptor Guidelines 2008	Within 0.25 mile of active raptor nests	No surface occupancy	With the exception of the species listed specifically identified in plan
BLM	Rawlins Field Office RMP	Within 825 feet of active raptor nests	Well locations, roads, ancillary facilities, and other surface structures requiring a repeated human presence will not be allowed. Distance may vary depending on factors such as nest activity, species, natural topographic barriers, and line-of-sight distances.	None
BLM	Little Snake Field Office RMP	Within 0.25 mile of raptor nests	No surface occupancy	The no surface occupancy area could be altered depending on the active status of the nest site or on the geographical relationship of topographical barriers and vegetation screening to the nest site.
BLM	Moab Field Office RMP	In the spatial buffer of active raptor nest	Land use activities that would have an adverse impact on an occupied raptor nest, would not be allowed	None
Raptor Nests – Listed and Candidate Threatened/Endangered Species, Bureau of Land Management Sensitive Species				
BLM	White River Field Office RMP	Within 0.25 mile of identified nests	No surface occupancy	Exceptions, modifications, or waivers to this no surface occupancy stipulation may be granted by the Area Manager.
Raptor Nests – Other Than Special Status Raptors				
BLM	White River Field Office RMP	Within 0.125 mile of identified nests	No surface occupancy	Exceptions, modifications, or waivers to this no surface occupancy stipulation may be granted by the Area Manager.

TABLE J-16 NO SURFACE OCCUPANCY AND NO SURFACE DISTURBANCE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
Bald Eagle Nocturnal Roosts, Concentration Areas and Nests				
BLM	Little Snake Field Office RMP	Within a 0.25-mile radius of roost sites and both occupied and unoccupied nests	Year-round no surface occupancy will be applied	None
BLM	Little Snake Field Office RMP	Within 100-meter radius of abandoned nests	No surface occupancy within a 100-meter radius of abandoned nests (unoccupied for 5 consecutive years, but with all or part of the nest remaining)	None
BLM	Little Snake Field Office RMP	Winter conservation areas	Prohibit any activity on BLM lands that has the potential to kill perch trees or impede use of foraging areas.	None
BLM	White River Field Office RMP	Bald eagle roost/concentration areas within 0.25 mile of designated features	No surface occupancy	Exceptions, modifications, or waivers to this no surface occupancy stipulation may be granted by the Area Manager.
BLM	Moab Field Office RMP	Within 1.0 mile of bald eagle nest sites or within 0.5 mile of bald eagle winter concentration areas	No permanent infrastructure. Permanent activities continue for more than one breeding season and/or cause a loss of habitat or displace individuals through disturbance (e.g., creation of a permanent structure including but not limited to well pads, roads, pipelines, electrical power line).	None
BLM	Moab and Richfield Field Office RMP	Bald eagle conservation measures	Power lines will be built to standards and guidelines identified by the Avian Protection Plan Guidelines.	None
BLM	Richfield Field Office RMP	Within 1 mile of bald eagle nest sites or within 0.5 mile of bald eagle winter concentration areas (roosts)	No permanent structures	None

TABLE J-16 NO SURFACE OCCUPANCY AND NO SURFACE DISTURBANCE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
Golden Eagle				
BLM	Moab Field Office RMP	Golden eagle nest sites and territories	No ground-disturbing activities will be allowed within a 0.5-miles radius of documented golden eagle nest sites in nesting territories from February 1 to July 15 or until fledgling and dispersal of young. Any access created by the action will be outside of nesting season and will be eliminated once action is complete.	**Exception**: An exception may be granted by the Field Manager if authorization is obtained from FWS and Utah Division of Wildlife Resources. The Field Manager also may grant an exception if an environmental analysis indicates that the nature or the conduct of the actions, as proposed or conditioned, will not impair the primary constituent element determined necessary for the survival and recovery of the golden eagle. **Modification**: The Field Manager may modify the boundaries of the stipulation area if an environmental analysis indicates and FWS and Utah Division of Wildlife Resources determine a portion of the area is not being used as golden eagle nesting territories. **Waiver**: A waiver may be granted if an individual golden eagle nest has been inactive (unoccupied) for at least a period of 3 years. Nest-monitoring data for a 3-year period will be required before the waiver could be granted.
Ferruginous Hawk				
CPW	Colorado Division of Wildlife Raptor Guidelines 2008	Within 0.5 mile of ferruginous hawk nests	No surface occupancy	None
BLM	Rawlins Field Office RMP	Within 1,200 feet of active ferruginous nests	Well locations, roads, ancillary facilities, and other surface structures requiring a repeated human presence will not be allowed. Distance may vary depending on factors such as nest activity, species, natural topographic barriers, and line-of-sight distances.	None

TABLE J-16 NO SURFACE OCCUPANCY AND NO SURFACE DISTURBANCE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
Mexican Spotted Owl				
BLM	Little Snake Field Office RMP	All protected activity centers	No surface occupancy will be applied	None
BLM	Moab Field Office RMP	Within 0.5 mile of an identified site; in the designated current and historic protected activity center.	If owls are found, no disturbing actions will occur within 0.5 mile of an identified site. If nest site is unknown, no activity will occur in the designated current and historic protected activity center.	None
Northern Goshawk				
CPW	Colorado Division of Wildlife Raptor Guidelines 2008	Within 0.5 mile of northern goshawk nests	No surface occupancy	None
Red-tailed Hawk				
CPW	Colorado Division of Wildlife Raptor Guidelines 2008	Within 0.33 mile of red-tailed hawk nests	No surface occupancy	None
Peregrine Falcon				
CPW	Colorado Division of Wildlife Raptor Guidelines 2008	Within 0.5 mile of peregrine falcon nests	No surface occupancy	None
BLM	Little Snake Field Office RMP	Within a 0.25 mile radius of cliff nesting complexes	No surface occupancy will be allowed.	No surface occupancy areas may be altered depending on the active status of the nesting complex or on the geographical relationship of topographical barriers and vegetation screening.
Prairie Falcon				
CPW	Colorado Division of Wildlife Raptor Guidelines 2008	Within 0.5 mile of prairie falcon nests.	No surface occupancy	None

TABLE J-16
NO SURFACE OCCUPANCY AND NO SURFACE DISTURBANCE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS

Agency	Applicable Plan/Policy	Area to Which Restriction Applies	Restriction	Exception
Waterfowl				
Waterfowl and Shorebird Significant Production Areas				
BLM	Little Snake Field Office RMP	Waterfowl habitat management areas and rookeries	No surface occupancy will be allowed on significant production areas, such as waterfowl habitat management areas and rookeries.	No surface occupancy areas may be altered, depending on the active status of the production areas or on the geographical relationship of topographical barriers and vegetation screening.
BLM	Salt Lake Field Office RMP	In waterfowl habitat (i.e., marsh and wetland areas)	BLM will protect important wildlife habitat values from disturbing activities by restricting seismic work, well development, new road construction, rights-of-way, and other disturbing activities, excluding maintenance activities.	Specific exceptions may be granted by BLM if the proposed activity will not seriously disturb the wildlife habitat values being protected.

SOURCES: Bureau of Land Management 1987; 2008b, c, d, e; 2011d; 2012e; Colorado Parks and Wildlife 2008

TABLE J-17 CONDITIONAL SURFACE USE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
Wetlands and Riparian Areas				
Bureau of Land Management (BLM)	Rawlins Field Office Resource Management Plan (RMP)	▪ Identified 100-year floodplains; ▪ areas within 500 feet of perennial waters, springs, and wetland and riparian areas; and ▪ areas within 100 feet of the inner gorge of ephemeral channels.	Ground-disturbing activities will be avoided.	Exceptions to this will be granted by the BLM based on an environmental analysis and site-specific engineering and mitigation plans. Only those actions in areas that cannot be avoided and that provide protection for the resource identified will be approved.
BLM	Grand Junction Field Office RMP	Palisade and Grand Junction municipal watersheds and the Jerry Creek Reservoirs	Limit ground-disturbing activities	None
BLM	Salt Lake Field Office RMP	Within 1,200 feet of riparian/aquatic habitats	Avoid to the maximum extent possible: Lands within 1,200 feet of riparian/aquatic habitats.	Specific exceptions may be granted by BLM if the proposed activity will not seriously disturb the wildlife habitat values being protected.
Soils				
BLM	White River Field Office RMP	Fragile soils on slopes greater than 35 percent and saline soils derived from Mancos shale	Ground-disturbing activities will be allowed in these areas only after an engineered construction/reclamation plan is submitted by the operator and approved by the Field Manager. The following items must be addressed in the plan: ▪ how soil productivity will be restored; and ▪ how surface runoff will be treated to avoid accelerated erosion such as riling, gullying, piping, and mass wasting.	**Exception**: An exception may be granted by the Field Manager if an environmental analysis of the proposed action identifies that the scale of the operation would not result in any long-term decrease in site productivity or increased erosion. An exception also may be granted by the Field Manager if a more detailed soil survey determines that soil properties associated with the disturbance do not meet fragile soil criteria. **Modification**: None. **Waiver**: None.
BLM	Price Field Office RMP	Slopes between 20 and 40 percent	In ground-disturbing proposals regarding construction on slopes of 20 percent to 40 percent, include an approved erosion control strategy and topsoil segregation/restoration plan. Such construction must be properly	**Exception**: If after an environment analysis the Authorized Officer determines that it would cause undue or unnecessary degradation to pursue other placement alternatives; surface

TABLE J-17 CONDITIONAL SURFACE USE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
			surveyed and designed by a certified engineer and approved by the BLM prior to project implementation, construction, or maintenance.	occupancy in the area may be authorized. In addition, a plan from the operator and BLM's approval of the plan would be required before construction and maintenance could begin. The plan must include: ▪ An erosion control strategy ▪ Geographic Information System modeling ▪ Proper survey and design by a certified engineer. **Modification**: Modifications also may be granted if a more detailed analysis, e.g., Order I soil survey conducted by a qualified soil scientist, finds that surface disturbance activities could occur on slopes between 20 and 40 percent while adequately protecting areas from accelerated erosion. **Waiver**: None
BLM	Rawlins Field Office RMP		Avoid construction with frozen material or during periods when the soil material is saturated or when watershed damage is likely to occur.	Exception, waiver, or modification of this limitation may be approved in writing, including documented supporting analysis, by the Authorized Officer.
Special Status Plants				
Rare Plant and Rare Plant Community Occurrences in Natural Systems				
BLM	Little Snake Field Office RMP	Rare plant and rare plant community in Limestone Ridge and Lookout Mountain	Avoidance areas for ground-disturbing activities: All disruptive activities will be delayed until specific protective measures are developed and implemented, if appropriate.	BLM
BLM	Grand Junction Field Office RMP	Significant known sites	The decision to protect habitats by placing stipulations on disturbance type activities will be implemented by comparing activities	None

TABLE J-17 CONDITIONAL SURFACE USE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
			proposed with areas identified for protective management. Applicable stipulations will be placed on projects that lie in the protected areas.	
Clay Phacelia				
U.S. Forest Service (USFS)/U.S. Fish and Wildlife Service (FWS)	Clay phacelia conservation measures	Within 200 feet of suitable habitat	No mechanical vegetation treatments	None
USFS/FWS	Clay phacelia conservation measures	Within 650 feet of suitable habitat	No construction of roads or disturbance from construction of poles, pads, towers, and other permanent features	If avoidance of suitable habitat is not possible, cumulative disturbance will not exceed 10 percent. Mitigation measures will be necessary for any disturbance in clay phacelia suitable habitat. The following measures will also be followed for any disturbance in clay phacelia suitable habitat: ▪ Clearance surveys should be conducted following the development of the construction footprint and prior to construction to determine species presence. ▪ All project employees, especially contractors, brought onsite for the duration of a project will be informed of the occurrence of clay phacelia in the project area and of the endangered status of the species. All project employees shall be advised as to the potential penalties (up to $200,000 in fines and one year in prison) for

TABLE J-17 CONDITIONAL SURFACE USE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
				damaging, destroying or removing and possessing a plant species on federal lands listed under the Act. A qualified biologist is required to perform this instruction. ▪ A qualified botanist should be onsite during all ground-disturbing activities to ensure plants are identified and avoided in suitable habitat. If any activity, development, or ground disturbance (even if temporary) occurs in clay phacelia modeled habitat, the following measures shall be considered: ▪ Acquisition of occupied habitat and placement into permanent conservation ▪ Successful introduction of clay phacelia into new sites on USFS land (up to 5 sites where presence of flowering adults occurs for a period of 5 years) ▪ Fencing of existing and suitable sites to protect from herbivores ▪ Contribution to a fund for ongoing management of populations and protection (e.g., fencing, caging, control of herbivores) of occupied habitat The following measures will be considered and weighted into the final mitigation calculation: ▪ Amount of modeled habitat disturbed and proximity to occupied habitat ▪ Type of disturbance: permanent

TABLE J-17 CONDITIONAL SURFACE USE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
				development, temporary development, temporary construction activity, intermittent activity ▪ Amount of time of disturbance: 1 month or less, up to 6 months, up to 1 year, more than 1 year or continuous ▪ Habitat fragmentation: Location and spacing of transmission lines from each other and other development.
USFS/FWS	Clay phacelia conservation measures	Within 2,500 feet of suitable habitat	No on-the-ground herbicide treatments. No aerial herbicide treatments.	None
USFS/FWS	Clay phacelia conservation measures	In clay phacelia suitable habitat	No ground disturbance from the stringing of wire between towers. Wire should be strung between towers aerially. A vegetation management plan should be developed that outlines methods for control of invasive, exotic species in greater detail while protecting clay phacelia and its habitat. A wildfire mitigation plan should be developed to prevent suitable habitat from being affected by emergency fire operations in the event of a wildfire. All equipment should be cleaned and inspected for presence of invasive, nonnative plants and seeds before being brought in suitable habitat.	None
Jones' Cycladenia				
BLM	Moab Field Office RMP	Potential, suitable, and occupied habitat. Potential, suitable, and occupied habitat are defined as follows:	Current avoidance and minimization measures include the following: ▪ Pre-project habitat assessments will be completed across 100 percent of the	None

TABLE J-17 CONDITIONAL SURFACE USE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
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		Potential habitat is defined as areas that satisfy the broad criteria of the species habitat description; usually determined by preliminary, in-house assessment. Suitable habitat is defined as areas that contain or exhibit the specific components or constituents necessary for plant persistence; determined by field inspection and/or surveys; may or may not contain clay reed-mustard; habitat descriptions can be found in the *Federal Register* Notice and species recovery plan links at http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=Q1V7. Occupied habitat is defined as areas currently or historically known to support clay reed-mustard; synonymous with known habitat.	project disturbance area in potential habitat prior to any ground-disturbing activities to determine if suitable Jones cycladenia habitat is present. ▪ Site inventories will be conducted in suitable habitat to determine occupancy. Where standard surveys are technically infeasible and otherwise hazardous due to topography, slope, etc., suitable habitat will be assessed and mapped for avoidance (hereafter, avoidance areas); in such cases, in general, 300-foot buffers will be maintained between surface disturbance and avoidance areas. However, site-specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of the habitat. Where conditions allow, inventories: • Must be conducted by qualified individual(s) and according to BLM- and FWS-accepted survey protocols; • Will be conducted in suitable and occupied habitat for all areas proposed for surface disturbance prior to initiation of project activities and in the same growing season, at a time when the plant can be detected (usually May 15 to June 30, however, surveyors should verify that the plant is flowering by contacting a BLM or FWS botanist or demonstrating that the nearest known population is in flower); • Will occur within 300 feet from the centerline of the proposed right-of-way	

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			for surface pipelines or roads; and within 300 feet from the perimeter of disturbance for the proposed well pad including the well pad; • Will include, but not be limited to, plant species lists and habitat characteristics; and • Will be valid until May 1 the following year. ▪ Design project infrastructure to minimize impacts in suitable habitat: • Where standard surveys are technically infeasible, infrastructure and activities will avoid all suitable habitat (avoidance areas) and incorporate 300-foot buffers, in general; however, site specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat; • Reduce well pad size to the minimum needed, without compromising safety; • Where technically and economically feasible, use directional drilling or multiple wells from the same pad; • Limit new access routes created by the project; • Roads and utilities should share common rights-of-way where possible; • Reduce the width of rights-of-way and minimize the depth of excavation needed for the road bed; where feasible, use the natural ground surface for the road in habitat;	

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			• Place signing to limit off-road travel in sensitive areas; • Stay on designated routes and other cleared/approved areas; and • All disturbed areas will be revegetated with native species comprised of species indigenous to the area and nonnative species that are not likely to invade other areas. ▪ In occupied habitat, project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts on populations and to individual plants: • Follow the above recommendations for Project design in suitable habitats; • To avoid water flow and/or sedimentation into occupied habitat and avoidance areas, silt fences, hay bales, and similar structures or practices will be incorporated into the project design; appropriate placement of fill is encouraged; • Construction of roads will occur such that the edge of the right-of-way is at least 300 feet from any plant and 300 feet from avoidance areas; • Roads will be graveled in occupied habitat; the operator is encouraged to apply water for dust abatement to such areas from May 15 to June 30 (flowering period); dust abatement applications will be comprised of water only;	

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			• The edge of the well pad should be located at least 300 feet away from plants and avoidance areas, in general; however, site specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat; • Surface pipelines will be laid such that a 300-foot buffer exists between the edge of the right-of-way and plants and 300 feet between the edge of right-of-way and avoidance areas; use stabilizing and anchoring techniques when the pipeline crosses suitable habitat to ensure pipelines don't move towards the population; site specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat; • Construction activities will not occur from May 15 through June 30 in occupied habitat; • Before and during construction, areas for avoidance should be visually identifiable in the field, e.g., flagging, temporary fencing, rebar, etc.; • Place produced oil, water, or condensate tanks in centralized locations, away from occupied habitat; and • Minimize the disturbed area of producing well locations through interim and final reclamation. Reclaim well pads following drilling to the smallest area possible.	

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			▪ Occupied Jones cycladenia habitats within 300 feet of the edge of the surface pipelines' rights-of-way, 300 feet of the edge of the roads' rights-of-way, and 300 feet from the edge of the well pad shall be monitored for a period of 3 years after ground-disturbing activities. Monitoring will include annual plant surveys to determine plant and habitat impacts relative to project facilities. Annual reports shall be provided to the BLM and FWS. To ensure desired results are being achieved, minimization measures will be evaluated and may be changed after a thorough review of the monitoring results and annual reports during annual meetings between the BLM and the FWS. ▪ Reinitiation of Section 7 consultation with the FWS will be sought immediately if any loss of plants or occupied habitat for the Jones' cycladenia is anticipated as a result of project activities. Additional site-specific measures also may be employed to avoid or minimize effects on the species. These additional measures will be developed and implemented in consultation with the FWS to ensure continued compliance with the Endangered Species Act (ESA).	
Ute Ladies'-tresses				
BLM	Little Snake Field Office RMP	0.25 miles from any known Ute ladies'-tresses orchid habitat	All proposed right-of-way projects (power lines, pipelines, roads, etc.) will be designed and locations selected to minimize disturbances. If avoidance of adverse effects	None

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			is not possible, the BLM will re-initiate consultation with the FWS.	
BLM	Little Snake Field Office RMP	In occupied or suitable habitat	Ground-disturbing activities would be preceded by a current year survey and a separate Section 7 consultation.	None
BLM	Richfield Field Office RMP	Occupied Ute ladies'-tresses habitats within 300 feet of the edge of the surface pipelines' rights-of-way, 300 feet of the edge of the roads' rights-of-way, and 300 feet from the edge of the well pad	Occupied habitat shall be monitored for a period of 3 years after ground-disturbing activities. Monitoring will include annual plant surveys to determine plant and habitat impacts relative to project facilities. Habitat impacts include monitoring any changes in hydrology due to Project-related activities. Annual reports shall be provided to the BLM and FWS. To ensure desired results are being achieved, minimization measures will be evaluated and may be changed after a thorough review of the monitoring results and annual reports during annual meetings between the BLM and FWS.	None
Special Status Wildlife Species				
BLM	Grand Junction Field Office RMP	Standard designs for power line projects	Structure holes left open overnight shall be covered. Covers shall be secure and strong enough to prevent livestock or wildlife from falling into holes.	None
BLM	Grand Junction Field Office RMP	Standard designs for power line projects	Holder shall not blade or excavate to prepare a structure framing pad. If a structure cannot be framed on the natural ground, aerial framing or offsite framing will be necessary.	None
BLM	Little Snake Field Office RMP	All special status wildlife	▪ Minimize width of field surface roads. ▪ Avoid engineered and graveled roads when possible to reduce the footprint. ▪ Reduce the long-term footprint of facilities to the smallest practical space.	None

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			▪ Design and construct roads to minimize duplication of them. ▪ Cluster development of roads, pipelines, electric lines, and other facilities, and use existing, combined corridors where possible.	
BLM	Richfield Field Office RMP	Standard designs for power line projects	▪ Ensure rights-of-way and utility corridors use areas adjoining or adjacent to previously disturbed areas whenever possible. • Stabilize disturbed areas in road rights-of-way and utility corridors with vegetation practices designed to hold soil in place and minimize erosion. Re-establish vegetation cover to increase infiltration and provide additional protection from erosion. • Construct sediment barriers when needed to slow runoff, allow deposition of sediment, and prevent transport from the site. Straining or filtration mechanisms also may be employed for the removal of sediment from runoff.	None
BLM	Fillmore Field Office (House Range RMP)	Terms for siting in existing right-of-way corridors	▪ Transmission line rights-of-way shall be adjacent to each other or as close as possible. ▪ Existing transmission line access roads shall be used, and only the roads to new tower sites shall be constructed for new rights-of-way.	None

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BLM	Salt Lake Field Office RMP	Standard designs for power line projects	Rights-of-way, whether inside or outside a corridor, will avoid the following areas to the maximum extent possible: ▪ Lands within 0.5 mile of sage grouse strutting grounds if the disturbance would adversely affect the effectiveness of the lek. ▪ Lands within 1,200 feet of riparian/aquatic habitats. ▪ Lands in Visual Resource Management Class II and III areas. ▪ Lands in wilderness study areas. ▪ Lands where an above-ground right-of-way would be an obvious visual or physical intrusion such as ridge tops or narrow drainages. ▪ Lands with slopes greater than 30 percent. ▪ Lands with known or suspected hazardous materials. In addition, construction activities would not be allowed in the crucial seasons and habitats for mule deer, elk, pronghorn, bald eagles, and other raptors.	Exceptions may be permitted based on consideration of the following criteria: ▪ a type and need for facility proposed and economic impact of facility; ▪ conflicts with other resource values and uses; and ▪ availability of alternative routes and/or mitigation
Black-footed Ferret				
BLM	Rawlins Field Office RMP	Within 164 feet (50 meters) of a prairie dog town	If prairie dog towns/complexes suitable as black-footed ferret habitat are present, attempts will be made to avoid locating ground-disturbing activities.	None
BLM	Little Snake Field Office RMP	Active white-tailed prairie dog colonies in the black-footed ferret reintroduction area.	Avoidance areas for ground-disturbing activities. Rights-of-way on public land with the potential to disturb occupied black-footed ferret habitat will be rerouted to avoid those prairie dog towns.	None

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BLM	Little Snake Field Office RMP	Prairie dog towns	Rights-of-way on public land with the potential to disturb occupied black-footed ferret habitat will be rerouted to avoid those prairie dog towns.	None
BLM	Little Snake Field Office RMP	Potential habitat	In areas where black-footed ferret occupancy is suspected or where surveys have not cleared the area, spotlighting surveys would be required prior to ground-disturbing activities.	None
BLM	Little Snake Field Office RMP	Occupied black-footed ferret habitat	Avoidance areas for new rights-of-way	None
BLM	White River Field Office RMP	Ferret reintroduction area	Prior to authorizing activities in this area, the Area Manager will confer or consult with the FWS as required by Section 7 of the ESA. Depending on the scope of the proposed action, a plan of development may be required that demonstrates how the proposed activities would be conducted or conditioned to: ▪ avoid the direct or indirect loss of black-footed ferrets; or ▪ avoid affecting the capability of the site to achieve re-establishment objectives. The Area Manager may impose land use measures and limitations derived from a site specific ferret reintroduction and management plan. The measures and limitations would be designed to avoid, or reduce to acceptable levels, the short and long-term adverse effects on ferret survival, behavior, reproductive activities, and/or the area's capacity to sustain ferret population objectives. Examples of measures and limitations include: ▪ relocation of surface 'activities more than 200 meters;	**Exception:** The Area Manager may authorize surface disturbance or use in these areas if an environmental analysis, and associated biological assessment, finds that the activity as proposed of conditioned, would not adversely influence ferret recovery, or conflict with the ferret reintroduction and conditioned, would not adversely influence ferret recovery, or conflict with the ferret reintroduction and management plan. **Modification:** The Area Manager may modify the terms of the controlled-surface use if the proposed action is shown to be compatible with ferret recovery goals and/or, the ferret reintroduction and management plan. **Waiver:** The Area Manager may grant a waiver if extirpation of wild, free roaming ferret populations culminates in the discontinuance of the species recovery program, or local reintroduction efforts are otherwise abandoned.

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			▪ deferring activities longer than 60 days; ▪ limiting access to designated roads and trails; ▪ modifications to project design to discourage raptor perching and prohibit the disruption of certain or all prairie dog burrow systems; ▪ limit surface disturbance to certain seasons and times of day; and ▪ require participation in ferret surveys and/or efforts to offset loses of, or expand suitable prairie dog habitats to compensate for unavoidable habitat loss or adverse habitat modification.	
White-tailed Prairie Dog				
BLM	Rawlins Field Office RMP	In white-tailed and black-tailed prairie dog towns	Ground-disturbing and disruptive activities will be avoided.	None
BLM	Rawlins Field Office RMP	In prairie dog towns	Placement of power poles will be avoided; however, in the event that power poles are required to be placed in these towns, raptor anti-perch devices will be required.	None
BLM	White River Field Office RMP	Prairie dog towns	Lands in this lease parcel involve prairie dog ecosystems that constitute potential habitat for wild or reintroduced populations of the federally endangered black-footed ferret. Conservation and recovery efforts for the black-footed ferret are authorized by the ESA (as amended). The successful lessee may be required to perform special conservation measures prior to and during lease development. These measures may include one or more of the following: ▪ Performing site-specific habitat analysis and/or participating in ferret surveys.	None

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Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
			▪ Participating in the preparation of a surface use plan of operations with BLM, FWS, and Colorado Division of Wildlife, which integrate and coordinate long-term lease development with measures necessary to minimize adverse impacts on black-footed ferrets or their habitat. ▪ Abiding by special daily and seasonal activity restrictions on construction, drilling, product transport, and service activities. ▪ Incorporating special modifications to facility siting, design, construction, and operation. ▪ Providing in-kind compensation for habitat loss and/or displacement (e.g., special onsite rehabilitation/revegetation measures or offsite habitat enhancement).	
Colorado River Fishes				
BLM	White River Field Office RMP	Colorado River cutthroat trout habitat	This is a controlled-surface use area for protecting aquatic habitats occupied by candidate populations of Colorado River cutthroat trout. Prior to authorizing surface disturbance of occupied stream reaches or in watersheds contributing to occupied habitats, the Area Manager may require the Applicant to submit a plan of development that would demonstrate that the proposed action would not: ▪ increase stream gradient; ▪ result in a net increase in sediment contribution; ▪ decrease stream channel sinuosity; ▪ increase the channel width to depth ratio;	**Exception**: The Area Manager may authorize surface disturbance in these areas if an environmental analysis indicates that the project would have no adverse influence on identified stream characteristics. **Modification**: Short-term transgressions of the stream characteristics listed above may be allowed if the Area Manager determines, through environmental analysis, that short-term deviations will have no adverse consequences on affected channel reaches beyond the construction phase of the project. **Waiver**: In the event the population status of Colorado River cutthroat trout

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			▪ increase water temperature; ▪ decrease vegetation derived stream shading; and ▪ degrade existing water quality parameters, including specific conductance, turbidity, organic/inorganic contaminant levels, and dissolved oxygen in occupied reaches or contributing perennial or intermittent tributaries. If approvals are granted and development results in these standards being exceeded, additional measures would be required to correct the deficiencies. The Applicant may be required to monitor stream/channel responses throughout the life of the project.	warrants downgrading, this stipulation may be replaced by less stringent criteria.
BLM	Little Snake Field Office RMP	All new pipelines and other controlled-surface uses crossing any critical or occupied habitat of the Colorado River fishes	Controlled-surface uses crossing any critical or occupied habitat of the Colorado River fishes will require separate Section 7 consultation.	None
BLM	Little Snake Field Office RMP	All new pipelines and other controlled-surface uses crossing any critical or occupied habitat of the Colorado River fishes	After construction, the stream bed will be returned to preconstruction contours	None
BLM	Moab and Richfield Field Office RMP	Within 0.25 mile of the channel centerline of the Colorado, Green, Duchesne, Price, White, and San Rafael rivers	Ground-disturbing activities will be restricted.	None
BLM	Moab Field Office RMP	In floodplains or riparian areas	Ground-disturbing activities will be avoided unless there is no practical alternative or the development would enhance riparian/aquatic values. If activities must occur in these areas, construction will be designed to include mitigation efforts to maintain, restore, and/or improve riparian and aquatic conditions. If	None

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			conditions could not be maintained, offsite mitigation strategies should be considered.	
Columbian Sharp-tailed Grouse				
BLM	Rawlins Field Office RMP	Within 0.25 to 1 mile of an occupied sharp-tailed grouse lek	High-profile structures (e.g., buildings, storage tanks, overhead power lines, wind turbines, towers, windmills) will be authorized on a case-by-case basis.	None
Greater Sage-grouse				
State of Wyoming	Executive Order for Greater Sage-grouse in Wyoming, 2011	Suitable sage-grouse habitat	Surface disturbance will be limited to 5 percent of suitable sage-grouse habitat per an average of 640 acres in core areas. The density of disturbance calculation tool process will be used to determine the level of disturbance. Distribution of disturbance may be considered and approved on a case-by-case basis. Unsuitable habitat should be identified in a seasonal and landscape context, on a case-by-case basis, outside the 0.6-mile buffer around leks in core areas.	**Exceptions**: Any exceptions to these general or specific stipulations will be considered on a case by case basis and must show that the exception will not cause declines in sage-grouse populations. No exception is needed within transmission corridors designated in Executive Order 2011-5
Colorado Parks and Wildlife (CPW)	Colorado Greater Sage-grouse Conservation Plan	Lek habitat	Power lines (transmission, service lines) – Whenever possible, avoid the construction of power lines in lek habitat. If impractical, power lines in lek habitat should be retro-fitted to deter raptor perching. If practical, power lines should be constructed to reduce the likelihood of grouse-wire collisions. Similar adjustments should be applied to existing power lines where grouse mortality issues have been identified. Roads and Trails – Avoid constructing roads and trails in lek habitat. If unavoidable, roads should be placed so they, and their associated traffic, are not in direct line-of-sight of strutting males. Vehicles should not exceed 30	None

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			to 40 mph during the strutting period to avoid grouse-vehicle collisions. Roads should be minimally developed and seasonal closures should be developed.	
CPW	Colorado Greater Sage-grouse Conservation Plan	Breeding habitat – nesting and early brood-rearing habitat, summer-fall habitat, and winter habitat	Power lines – If possible, power lines should be avoided in these seasonal habitats. If not possible, consider burying power lines, placing raptor perching deterrents, and avoiding areas where sage-grouse concentrate, riparian areas, or areas where collisions or predatory events from perching raptors have been documented. Roads and Trails – Vehicles should not exceed 30 to 40 mph on local or unpaved roads.	None
State of Utah	Conservation Plan for Greater Sage-grouse in Utah, 2013	Transmission corridors	▪ Apply mitigation standards based on habitat type as discussed in the Management Protocol, and best management practices accepted by industry and state and federal agencies. ▪ For electrical transmission lines, and where feasible and consistent with federally required electrical separation standards, site new linear transmission features in existing corridors, or at a minimum, in concert with existing linear features in greater sage-grouse habitat. Siting linear features accordingly shall be deemed to be mitigation for the siting.	None
State of Utah	Conservation Plan for Greater Sage-grouse in Utah, 2013	Nesting and brood-rearing area (i.e., habitat within a 3-mile radius of the lek; and winter habitat; and other habitat [Note: Other habitat refers to habitat in sage-grouse	▪ Avoid disturbance in nesting and brood-rearing area, if possible. The Applicant must demonstrate why avoidance is not possible.	None

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		management areas that is not part of the lek, nesting, or wintering areas).	▪ If avoidance is not possible, use minimization as appropriate in the nesting and brood-rearing area. ▪ If minimization is not sufficient, mitigation is required. Mitigation should be calculated at a minimum of a 4:1 ratio starting with the first acre disturbed. Mitigation must produce lands capable of supporting sage-grouse as habitat before the proposed disturbance occurs, though birds do not need to be using the mitigated area. The Applicant of the disturbance must demonstrate that the conditions have been met. ▪ Cumulative new permanent disturbance in the sage-grouse management area should not exceed 5 percent of the spatial extent of the nesting habitat in the sage-grouse management area. Allowances must be made to include the temporal effects of any temporary disturbance, if any such effects are expected.	
BLM	Rawlins Field Office RMP	Within 0.25 mile to 1.0 mile of an occupied greater sage-grouse lek	High-profile structures (e.g., buildings, storage tanks, overhead power lines, wind turbines, towers, windmills) will be authorized on a case-by-case basis.	None
BLM	Vernal Field Office RMP	Within 0.5 mile of known active leks	The best available technology will be used to reduce noise (e.g., installation of multi-cylinder pumps, hospital sound-reducing mufflers, and placement of exhaust systems).	None
BLM	Fillmore Field Office RMP	Within 2.0 miles of active sage-grouse strutting ground	Sagebrush manipulation will be prohibited in that zone and a seasonal off-highway vehicle restriction will be implemented.	None

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Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
Mexican Spotted Owl				
BLM	Vernal Field Office RMP	If owls are found, no actions will occur within 0.5 mile of identified nest site. If nest site is unknown, no activity will occur in the designated protected activity center.	For all permanent actions that may affect owls or suitable habitat, survey two consecutive years for owls according to accepted protocol prior to commencing activities. Avoid drilling and permanent structures within 0.5 mile of suitable habitat unless surveyed and not occupied.	BLM
BLM	Moab Field Office RMP	Mexican spotted owl protected activity centers, breeding habitat, or designated critical habitat	▪ BLM will place restrictions on all authorized (permitted) activities that may adversely affect the Mexican spotted owl in identified protected activity centers, breeding habitat, or designated critical habitat to reduce the potential for adverse impacts on the species. Restrictions and procedures have been adapted from guidance published in the *Utah Field Office Guidelines for Raptor Protection from Human and Land-use Disturbances*, as well as coordination between the BLM and FWS. Measures include: • Surveys, according to FWS protocol, will be required prior to any disturbance-related activities that have been identified to have the potential to affect Mexican spotted owl, unless current species' occupancy and distribution information is complete and available. All surveys must be conducted by FWS certified individuals and approved by the BLM Authorized Officer. • Assessment of habitat suitability for both nesting and foraging using	**Exception:** An exception may be granted by the Field Manager if authorization is obtained from FWS (through applicable provisions of the ESA). The Field Manager also may grant an exception if an environmental analysis indicates the nature or the conduct of the actions would not impair the primary constituent element determined necessary for the survival and recovery of the Mexican spotted owl and FWS concurs with this determination. **Modification:** The Field Manager may modify the boundaries of the stipulation area if an environmental analysis indicates and FWS (through applicable provisions of the ESA) determines a portion of the area is not being used as critical habitat. **Waiver:** A waiver may be granted if the Mexican spotted owl is de-listed and the Critical Habitat is determined by FWS as not necessary for the survival and recovery of the Mexican spotted owl.

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			accepted habitat models in conjunction with field reviews. Apply the appropriate conservation measures below if Project activities occur within 0.5 mile of suitable owl habitat, dependent in part on if the action is: ○ **Temporary:** activities completed prior to the start of the following raptor breeding season, leaving no permanent structures, and resulting in no permanent habitat loss. ○ **Permanent:** activities that continue for more than one breeding season and/or cause a loss of owl habitat or displaces owls through disturbances (e.g., creation of a permanent structure including but not limited to well pads, roads, pipelines, electrical power line). **For all temporary actions that may affect owls or suitable habitat:** • If action occurs entirely outside of the owl breeding season, and leaves no permanent structure or permanent habitat disturbance, action can proceed without an occupancy survey. • If action will occur during a breeding season, conduct surveys for owls prior to commencing activity. If owls are found, activity should be delayed until outside of the breeding season. • Eliminate access routes created by the Project through such means as raking out scars, revegetation, gating access points, etc.	

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			For all permanent actions that may affect owls or suitable habitat: • Survey two consecutive years for owls according to established protocol prior to commencement of activity. • If owls are found, no actions will occur within 0.5 mile of an identified nest site. • If a nest site is unknown, no activity will occur in the designated protected activity center. • Avoid placing permanent structures within 0.5 mile of suitable habitat unless surveyed and not occupied. • Reduce noise emissions (e.g., use hospital-grade mufflers) to 45 decibels (A-weighted scale) at 0.5 mile from suitable habitat, including canyon rims. Placement of permanent noise-generating facilities should be determined by a noise analysis to ensure noise does not encroach on a 0.5-mile buffer for suitable habitat, including canyon rims. • Limit disturbances to and in suitable owl habitat by staying on designated routes. • Limit new access routes created by the Project. BLM will, as a condition of approval on any project proposed in identified protected activity centers, designated critical habitat, or within spatial buffers for Mexican spotted owl nests (0.5 mile); ensure the Project Applicant is notified as to their responsibilities for	

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			rehabilitation of temporary access routes and other temporary surface disturbances created by the Project, according to individual BLM field office standards and procedures, or those determined in the Project-specific Section 7 Consultation. ▪ The BLM will require monitoring of activities in designated critical habitat, identified protected activity centers, or breeding habitats where it has been determined there is a potential for take. If any adverse impacts are observed to occur in a manner, or to an extent that was not considered in the Project-specific Section 7 Consultation, then consultation must be reinitiated. ▪ Monitoring results should document what, if any, impacts on individuals or habitat occur during Project construction/implementation. In addition, monitoring should document successes or failures of any impact minimization or mitigation measures. Monitoring results would be considered an opportunity for adaptive management, and as such, would be carried forward in the design and implementation of future projects. ▪ For all survey and monitoring actions: • Reports must be provided to affected field offices within 15 days of completion of survey or monitoring efforts. • Report any detection of Mexican	

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			spotted owls during survey or monitoring to the Authorized Officer within 48 hours. ▪ The BLM will, in areas of designated critical habitat, ensure that any physical or biological factors (i.e., the primary constituent elements), as identified in determining and designating such habitat, remains intact during implementation of any BLM-authorized activity. ▪ For all BLM actions that may adversely affect the primary constituent elements in any suitable Mexican spotted owl habitat, BLM will implement measures as appropriate to minimize habitat loss or fragmentation, including rehabilitation of access routes created by the Project through such means as raking out scars, revegetation, gating access points, etc. ▪ Where technically and economically feasible, use directional drilling from single drilling pads to reduce surface disturbance and minimize or eliminate needing to drilling in canyon habitats suitable for Mexican spotted owl nesting. ▪ Prior to surface-disturbing activities in Mexican spotted owl protected activity centers, breeding habitats, or designated critical habitat, specific principles should be considered to control erosion. These principles include: • Conduct long-range transportation planning for large areas to ensure roads will serve future needs. This will result	

TABLE J-17 CONDITIONAL SURFACE USE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
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			in less total surface disturbance. • Avoid surface disturbance in areas with high erosion hazards to the greatest extent possible. Avoid mid-slope locations, headwalls at the source of tributary drainages, inner valley gorges, and excessively wet slopes such as those near springs. In addition, avoid areas where large cuts and fills would be required. • Locate roads to minimize roadway drainage areas and to avoid modifying the natural drainage areas of small streams. ▪ Project developments should be designed and located to avoid direct or indirect loss or modification of Mexican spotted owl nesting and/or identified roosting habitats. ▪ Water production associated with BLM-authorized actions should be managed to ensure maintenance or enhancement of riparian habitats.	
BLM	Price Field Office RMP	Designated critical habitat	Any surface use or occupancy in designated critical habitat would be strictly controlled through close scrutiny of any surface use plan filed to protect habitat values and the use of the area by Mexican spotted owls. Modifications to the Surface Use Plan of Operations may be required for the protection of these resources. This limitation may apply to operation and maintenance of producing wells.	**Exception**: The Authorized Officer may grant an exception if an environmental analysis demonstrates that the action would not impair the function or utility of the site for nesting or other owl-sustaining activities. **Modification**: The Authorized Officer may modify the conditional surface use area in extent if an environmental analysis finds that a portion of the area is nonessential to site utility or function or if natural features provide adequate visual

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				or auditory screening. **Waiver**: A waiver may be granted if the species is de-listed and the critical habitat is determined as not necessary for the survival and recovery of the species.
Mountain Plover				
BLM	Rawlins Field Office RMP	Within 0.5 mile of identified mountain plover-occupied habitat	Power lines will be buried or poles will include a perch-inhibitor in their design.	None
BLM	Rawlins Field Office RMP	Within 0.5 mile of identified mountain plover-occupied habitat	Road-killed animals will be promptly removed.	None
Southwestern Willow Flycatcher				
BLM	Moab Field Office RMP	Within a 0.25-mile buffer from suitable riparian habitats; within 0.5 mile of suitable southwestern willow flycatcher habitat	All ground-disturbing activities should be restricted within a 0.25-mile buffer from suitable riparian habitats and permanent surface disturbances should be avoided within 0.5 mile of suitable southwestern willow flycatcher habitat.	None
BLM	Moab Field Office RMP	Southwestern willow flycatcher habitat (riparian areas)	In areas that contain riparian habitat in the range for the southwestern willow flycatcher, actions will be avoided or restricted that may cause stress and disturbance during nesting and rearing of their young. Appropriate measures will depend on whether the action is temporary or permanent, and whether it occurs inside or outside the nesting season. A temporary action is completed prior to the following breeding season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action continues for more than one breeding season and/or causes a loss of habitat or displaces flycatchers through disturbances (i.e., creation of a permanent structure). Current avoidance and minimization measures	**Exception**: An exception may be granted by the Field Manager if authorization is obtained from FWS (through applicable provisions of the ESA). The Field Manager may also grant an exception if an environmental analysis indicates that the nature of the conduct of the actions, as proposed or conditioned, will not impair the primary constituent element determined necessary for the survival and recovery of the southwestern willow flycatcher and FWS concurs with this determination. **Modification**: The Field Manager may modify the boundaries of the stipulation area if an environmental analysis indicates, and FWS (through applicable

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			include the following: ▪ Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All surveys must be conducted by qualified individual(s) and be conducted according to protocol. ▪ Activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated. ▪ Water production will be managed to ensure maintenance or enhancement of riparian habitat. ▪ Activities will maintain a 300 feet buffer from suitable riparian habitat year long. ▪ Activities within 0.25 mile of occupied breeding habitat will not occur during the breeding season of May 1 to August 15. ▪ Ensure that water extraction or disposal practices do not result in change of hydrologic regime that will result in loss or degradation of riparian habitat. ▪ Revegetate with native species all areas of surface disturbance in riparian areas and/or adjacent land. Additional measures to avoid or minimize effects on the species may be developed and implemented in consultation with the FWS between the lease sale stage and lease development stage to ensure continued compliance with the ESA.	provisions of the ESA) determines that a portion of the area is not being used as southwestern willow flycatcher habitat. **Waiver**: May be granted if the southwestern willow flycatcher is de-listed and if FWS determines it is not necessary for the survival and recovery of the southwestern willow flycatcher.

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Western Yellow-billed Cuckoo				
BLM	Little Snake Field Office RMP	Current western yellow-billed cuckoo habitat	Construction of roads, pipelines, and power lines through riparian habitat should be placed near the edge of the current yellow-billed cuckoo habitat. Roads, new trails, and rights-of-way should be combined where possible, and stream crossings should be at right angles to yellow-billed cuckoo habitat to minimize impacts.	None
BLM	Little Snake Field Office RMP	Current western yellow-billed cuckoo habitat	To avoid direct impacts on or changes in riparian habitat, do not modify stream channel morphology.	None
Boreal Toad				
BLM	Rawlins Field Office RMP	In known western boreal toad habitat	Any action that would result in stream channel instability, erosion, and sedimentation will be avoided.	None
Big Game				
Mule Deer				
BLM	Vernal Field Office RMP	Deer crucial winter range	No more than 10 percent of such habitat will be subject to surface disturbance and remain un-reclaimed at any given time.	None
Bighorn Sheep				
BLM	Salt Lake Field Office RMP	In bighorn sheep crucial winter and lambing areas	Once these ranges have been established by the reintroduced animals, appropriate dates and crucial habitats will be delineated.	Specific exceptions may be granted by BLM if the proposed activity will not seriously disturb the wildlife habitat values being protected.
Raptors				
Unoccupied Raptor Nests – Other Than Special Status Raptors				
BLM	Moab and Price Field Offices RMPs	In spatial buffer of unoccupied nest	Ground-disturbing activities, occurring outside of the breeding season (seasonal buffer), but in the spatial buffer, would be allowed during a minimum 3-year nest monitoring period, as long as the activity would not cause the nest site to become	None

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			unsuitable for future nesting, as determined by a wildlife biologist. Facilities and other permanent structures would be allowed, if they meet the above criteria.	
Active Nests				
BLM	Grand Junction and White River Field Offices RMPs	Standard designs for power line projects	Unless otherwise agreed upon in writing, power lines shall be constructed according to standards as outlined in *Suggested Practices for Raptor Protection on Power Lines, Raptor Research Foundation, Inc., 1981*. Industry officials shall assume the burden and expense of proving that pole designs not shown in publications are eagle safe. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modifications or additions to all power line structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the BLM.	None
Bald Eagle Nocturnal Roost and/or Concentration Areas				
BLM	Little Snake Field Office RMP	Winter conservation areas	All new power line construction should comply with the Avian Power Line Interaction Committee's publication, *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996* (Edison Electric Institute/Raptor Research Foundation 1996).	None
BLM	White River Field Office RMP	Bald eagle nest, roost, and perch substrate	This is a controlled-surface use area for maintaining the long-term suitability, utility and development opportunities for specialized habitat features involving nest, roost and	**Exception**: The Area Manager may grant an exception to this stipulation if an environmental analysis indicates that the proposed or conditioned activities would

TABLE J-17 CONDITIONAL SURFACE USE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
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			perch substrate on federal lands. Prior to authorizing surface disturbance in this area, and pending conferral or consultation with the FWS as required by the ESA, the Area Manager may require the Applicant to submit a plan of development that would demonstrate that: ▪ involvement of cottonwood stands or cottonwood regeneration areas have been avoided to the extent practicable; ▪ special reclamation measures or design features are incorporated that would accelerate recovery and/or re-establishment of affected cottonwood communities; ▪ the predevelopment potential of affected floodplains to develop or support riverine cottonwood communities has not been diminished; and ▪ the current/future utility of such cottonwood substrate for bald eagle use would not be impaired.	not affect the long-term suitability or utility of habitat features or diminish opportunities for natural floodplain functions. Surface disturbance and occupation may indicate that the proposed or conditioned activities would not affect the long-term suitability or utility of habitat features or diminish opportunities for natural floodplain functions. Surface disturbance and occupation also may be authorized in the event that established impacts on habitat values would be compensated or offset to the satisfaction of the BLM in consultation with FWS and CPW. **Modification**: Integral with exception and stipulation **Waiver**: None
BLM	Moab Field Office RMP	Nest sites and winter roost areas in habitat for bald eagles	In areas that contain habitat for the bald eagle, actions will be avoided or restricted that may cause stress and disturbance during nesting and rearing of their young. Appropriate measures will depend on whether the action is temporary or permanent, and whether it occurs inside or outside the bald eagle breeding or roosting season. A temporary action is completed prior to the following breeding or roosting season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action continues for more than one breeding or	**Exception**: An exception may be granted by the Field Manager if authorization is obtained from FWS (through applicable provisions of the ESA). The Field Manager also may grant an exception if an environmental analysis indicates that the nature of the conduct of the actions, as proposed or conditioned, will not impair the primary constituent element determined necessary for the survival and recovery of the bald eagles and FWS and Utah Division of Wildlife Resources (UDWR) concur with

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			roosting season and/or causes a loss of eagle habitat or displaces eagles through disturbances (i.e., creation of a permanent structure). Current avoidance and minimization measures include the following: ▪ 1. Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All surveys must be conducted by qualified individual(s), and be conducted according to protocol. ▪ Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures would be evaluated. ▪ Water production will be managed to ensure maintenance or enhancement of riparian habitat. ▪ Temporary activities within 1.0 mile of nest sites will not occur during the breeding season of January 1 to August 31, unless the area has been surveyed according to protocol and determined to be unoccupied. ▪ Temporary activities within 0.5 mile of winter roost areas (e.g., cottonwood galleries) will not occur during the winter roost season of November 1 to March 31, unless the area has been surveyed according to protocol and determined to be unoccupied. ▪ No permanent infrastructure will be placed within 1.0 mile of nest sites.	this determination. **Modification**: The Field Manager may modify the boundaries of the stipulation area if an environmental analysis indicates, and FWS and UDWR (through applicable provisions of the ESA) determine that a portion of the area is not being used as bald eagle nesting territories. **Waiver**: May be granted if bald eagles are de-listed and if FWS and UDWR determine it is not necessary to protect nesting territories according to the ESA and The Bald Eagle Protection Act or if there is no reasonable likelihood of site occupancy over a minimum 10-year period.

TABLE J-17 CONDITIONAL SURFACE USE RESTRICTIONS FOR BIOLOGICAL RESOURCES FROM APPLICABLE BUREAU OF LAND MANAGEMENT, U.S. FOREST SERVICE, AND OTHER PLANS				
Agency	**Applicable Plan/Policy**	**Area to Which Restriction Applies**	**Restriction**	**Exception**
			▪ No permanent infrastructure will be placed within 0.5 mile of winter roost areas. ▪ Remove big game carrion to 100 feet from on lease roadways occurring in bald eagle foraging range. ▪ Avoid loss or disturbance to large cottonwood gallery riparian habitats. ▪ All areas of surface disturbance in riparian areas and/or adjacent uplands should be re-vegetated with native species.	
SOURCES: Bureau of Land Management 1987; 1990; 2008a, b, c, d, e; 2011d; 2012e; State of Utah 2013				

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